

U.S. DEPARTMENT OF COMMERCE National Technical Information Service

AD-A034 378

OBSERVED MEAN MONTHLY WINDS AT STANDARD PRESSURE SURFACES FROM 850 MB TO 100 MB

AIR FORCE GEOPHYSICS LABORATORY
HANSCOM AIR FORCE BASE, MASSACHUSETTS

30 SEPTEMBER 1976

AFGL-TR-76-0234 ENVIRONMENTAL RESEARCH PAPERS, NO. 578

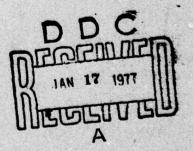


Observed Mean Monthly Winds at Standard Pressure Surfaces From 850 mb to 100 mb

ARTHUR J. KANTOR

30 September 1976

Approved for public release; distribution unlimited.



METEOROLOGY DIVISION PROJECT 8624

AIR FORCE GEOPHYSICS LABORATORY
HANSCOM AFB, MASSACHUSETTS 01731

AIR FORCE SYSTEMS COMMAND, USAF

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161



This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER:

Chief Scientist

Qualified requestors may obtain additional copies from the Defense Documentation Center. All others should apply to the National Technical Information Service.

ACCESSION for	/
MAR.	White Section
BOE WARROURCES	Buff Section (1)
JUSTIFICATION.	
N	
	AVAILABILITY COSES
	VAVAILABILITY COSES

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Date Enter

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
REPORT NUMBER 2. GOVT ACCESSION NO.	3. PECIO-FRE'S CATALOG NUMBER
AFGL-TR-76-0234	
TITLE (and Subtitle)	5. TIFE OF KEPCHT & PERIOD COVERED
OBSERVED MEAN MONTHLY WINDS AT	Scientific, Final
STANDARD PRESSURE SURFACES FROM	6. PERFORMING ORG. REPORT NUMBER
850 mb TO 100 mb	ERP No. 578
7. AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(s)
Arthur J. Kantor	
PERFORMING ORGANIZATION NAME AND ADDRESS	10 BOTG PAU EL WENT, PROJECT, TASK
Air Force Geophysics Laboratory(LY)	P. E. 62101F
Hanscom AFB Massachusetts 01731	86240105
1. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE
Air Force Geophysics Laboratory (LY)	30 September 1976
Hanscom AFB	13. NUMBER OF PAGES
Massachusetts 01731	15. SECURITY CLASS. (of this report)
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	
	Unclassified
	154 DECLASSIFICATION DOWNGRADING
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different fro	m Report)
18. SUPPLEMENTARY NOTES	
19. KEY WORDS (Continue on reverse side if necessary and identify by block number,	
Upper-air winds Climatic winds Mean monthly winds	
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)	ast-west and north-south ctober at 200 Northern

DD 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified SECURITY CLASSIFICATION OF THIS PAGE (When Dete Entered

1. INTRODUCTION 5 2. OBSERVED VS "ATLAS" WINDS 6 3. MEAN MONTHLY OBSERVED WINDS 7 4. CONCLUSIONS 7 Illustrations 1. Locations of 200 Northern Hemisphere Rawinsonde Stations 9 Tables 1. Comparison of "Atlas" and Observed Mean Seasonal Wind Components 8 2. Climatic Mean Monthly Observed East-West and North-South Winds 10

Observed Mean Monthly Winds at Standard Pressure Surfaces From 850 mb to 100 mb

1. INTRODUCTION

This paper contains mean east-west (zonal) and north-south (meridional) wind components for the seven standard pressure surfaces between 850 mb and 100 mb at 200 Northern Hemisphere rawinsonde stations. The wind components are based on at least 8 years of rawinsonde observations taken during the 10-year period from January 1964 through December 1973. Values were summarized from the publication Monthly Climatic Data for the World, ¹ which contains mean monthly vector winds based on daily rawinsonde observations. For most stations, less than 10 percent of the daily observations are missing. No attempt was made to estimate any bias that may be introduced by the absence of these observations; however, in general, the strong wind cases are the most frequently missed observations, resulting in slightly smaller computed mean values than the true means. Because observing equipment has improved in recent years, fewer observations are missed now than prior to 1964.

(Received for publication 29 September 1970)

NOAA (1964-1974) Monthly Climatic Data for the World, January 1964-December 1973, U.S. Government Printing Office.

The climatic mean wind components provided in this paper were originally calculated for use in comparing observed and computer-deduced mean monthly winds. This comparison led to the conclusion that winds based on daily rawinsonde observations provided better estimates of true climatic winds than the computer-generated values. This conclusion and the fact that one of the most highly regarded wind atlases available today is more than 17 years old, has prompted publication of these tables.

These tables are based on at least 8 years of observations taken since 1964 and are considered to be good estimates of the true climatic winds. On the other hand, the charts in Crutcher's atlas are based on observations taken between 1944 and early 1958. At that time, only 4 years of upper-air data were available for many locations. Consequently, a new atlas based on more recent observations is needed.

2. OBSERVED VS "ATLAS" WINDS

Mean seasonal "atlas" winds obtained from reference 3 were compared with the observed climatic winds published in this report for a number of Northern Hemisphere stations ranging in latitude from 14°N to 80°N. Winter (December, January, and February) and summer (June, July, and August) zonal and meridional winds for six of these stations are shown in Table 1 for six standard pressure levels, 850 through 100 mb. Speeds are in knots, and positive values represent winds from the west and south.

Values shown for the two methods are in general agreement. However, differences at some locations, levels, and seasons are significant, notably at the higher altitudes and speeds. For example, winter zonal winds for 200 and 300 mb at Kagoshima, Japan, and for 100 to 300 mb at Libue. Kauai, Hawaii, do not compare well, in that observed winds are considerably larger than "atlas" values (see Table 1). At least a portion of these discrepancies is a result of the fact that "atlas" winds at the six stations shown are based on only 5 to 6 years of data, whereas the observed climatic winds are based on 10 years (9 years at Jan Mayen). Furthermore, the "atlas" winds were taken from data roughly 15 years older than that for the climatic winds in this paper; hence, the actual period of record at the higher pressure altitudes is for even fewer years than indicated in both Crutcher's atlas and Table 1. Much of the missing data at the higher altitudes was undoubtedly

Kantor, A.J. (1976) A Comparison Between Observed and Deduced Mean Monthly Winds from 700 mb to 200 mb, ERP No. 548, AFCRI, TR-76-0044.

Crutcher, H. L. (1959) Upper Wind Statistics Charts of the Northern Hemisphere, NAVAER 50-1C-335, Volumes I and II.

due to strong winds aloft in winter that severely affected the older rawinsonde tracking equipment. Consequently, the resulting bias toward lighter winds (at the higher levels) is greater in the earlier "atlas" data.

3. WEAN WONTHLY OBSERVED WINDS

Climatic mean monthly observed winds are provided in Table 2 for the 200 Northern Hemisphere locations shown in Figure 1. Based on at least 8 years of daily observations, as described earlier, the mean zonal and meridional winds presented in Table 2 are for the midseason months January, April, July, and October. Again, speeds are in knots, and positive values represent winds from the west and south.

4. CONCLUSIONS

The information provided in Table 2 is considered to be the best climatic mean monthly wind data currently available. Moreover, it indicates a need for the construction of an up-to-date, upper-air wind atlas that will contain scalar wind speeds, standard vector deviations, and standard deviations of zonal and meridional components.

Table 1. Comparison of "Atlas" and Observed Mean Seasonal Wind Components*

-				-	_	-				-											
	S/N	Obs	7	**	9 6	9 69	00				89.6	700 mm	· eş	0			1	0	68	99	4
Summer	N	Atlas	9-	2	9 0	8 000	*		10 yr)	80	en e	0 6	7	-		9 Ye3		9	356	anti	81
Sum	M.	Obs,	-14	-10	- G	23	0	6	rved,	36	50	2 6	36	2		Observed.		200	*	-	8.8
	E)	Atlas	-13	E C	9 8	33	ork c	'n 41 ⁰ an	20	3.3	ge is	8 8	999	Que Sti	- a8m	01		79	60		8.8
	s/x	Obs.	**	en6 (7 9	-11	9-	Na (446),	8, 9	4-	0 5	9 5	3.6	9	9.40	Jan Mayen (71 M, ecord: Atlan Sur		0.0	0	7	8-
Winter	N	Atlas	and)	99 (19 m	-11	250 250 1	Shin Del	Records A	9	9 :	3 6	23	9		Becomb A	-	100	581	gm :	9
10,00	E/W	Obs.	900	88 9	98	200	30		2	1.5	E 6	9 9	6.5	32		of Br		99	80	gro-	(900)
	(ii)	Athas	60	onti (i	8 6	43	88		(Period	2.5	200	# (F)	99	12		(Period)	1	9	89	2.6	(0.6)
and			999	7990	366	300	100			850	2,000	3000	200	1000			1	830	2,000	9000	(0)(0)(0)
-	9	Obs.		59 :	-8-		7			6		9 69	0	9			[92	97	-	100
	s//s	Atlas Obs.	891			100	-9-		(10 ye)			9 69				. 10 ye)				pati (
Summer		Che. Atlas	8 8	# C	8 6 6 6	100	-19 -4 -9	(E)	ved, 10	(B)	10	25	24 6	9:	3			9	9"	97 .	3.8.5
	8/x m/x	. Atlas Obs. Atlas	8	# La 92	(S) cor	100	-19 -4 -9	⁶ N. 131 ⁶ E3	13 Observed, 10	(B)	10	9	24 6	9:	3	5 yr; Observed.		9	9"	9	3.8.5
		Obe. Attas Obe. Attas	8 8 8	# L 2	S = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	100	-17 -19 -4 -5	(32°N.	us, 6 yr; Observed, 10	6 6 6		7 22 25 4	16 29 24 6	91 90 00	940 0090	as, 5 yr: Observed.		9 1	9- 01 01 20	80 11 91 010	2 H 2 N N N N N N N N N N N N N N N N N
Summer Summer	W/2	. Atlas Obs. Atlas Obs. Atlas	0 -2 -0 3 2	F 0 00			5 7 -17 -19 -4 -5		cord: Atlas, 6 yr; Observed, 10	S # 6 9 #c		2 7 25 6	3 16 29 24 6	91 9 8 6	940 940	Cords Asias, 5 yrs Observed.		100 mm	9- 91 91 10	80 12 91 010 010	-14 -15 Sec -17
Summer	W/2	Obs. Atlas Obs. Atlas Obs. Atlas	-18 0 -2 -9 -9 3 2		15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0		-13 5 7 -17 -19 -4 -5	makima (32 ⁰ N.	cord: Atlas, 6 yr; Observed, 10	24 c6 c8 c	23 4 4 4 3	117 2 7 22 25 4	139 3 16 29 24 6	9 B B B B B	940 0090	Cords Asias, 5 yrs Observed.		9 P	12 46 47 10 10 46	16 -10 -10 16 17 -08	250 -114 -115 See See -115
Summer Summer	M/S S/K	. Atlas Obs. Atlas Obs. Atlas	-15 -18 0 -2 -9 -9 3 2	# 10 00 00 00 00 00 00 00 00 00 00 00 00	2		-10 -13 5 7 -17 -19 -4 -5	makima (32 ⁰ N.	Atlas, 6 yr; Observed, 10	S # 6 9 #c	42 43 -4 -4 -4 7 10 3	98 117 2 7 22 25 4	110 139 3 16 29 24 6	90 84 0 6 98	940 0090	Assas, 5 yrs Observed.		20 0 1 10 00 10 00	12 12 46 47 10 10 40	80 12 91 010 010	28 27 -14 -15 29 36 -17

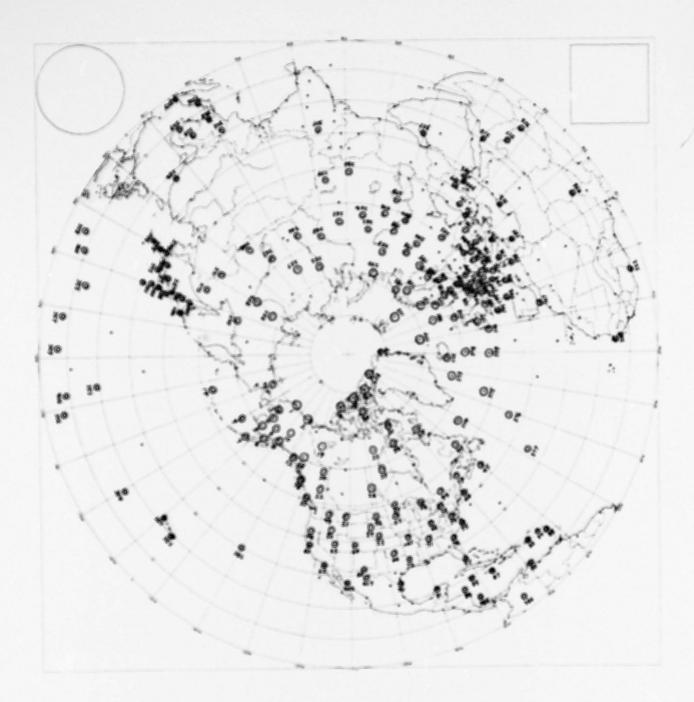


Figure 1. Locations of 200 Northern Hemisphere Rawinsonde Stations

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds*

OCT W N/S	64.6						1			- 2-		-		1	2	9 99	4	4	9
E/W	0 4	* 00	14	11	13		62	9	100	22	21	20		2	9	11	19	24	24
N N/S		. 9	en			W)	00	90 (- 4	0 01	1	-	240M)	67	673	2	-1	-2	-1
E/W	0	4 00	9	E- 12		, 162°	0	0	200	11	80	2	ON, 15	0	2	9	14	16	11
PR N/S	04.0	e 02	9	t- t-	. 6	Bethel (61°N, 162°W)	2	9	r= 0	0 00	6	80	6 King Salmon (59°N, 157°W)	en	4	10	es	*	9
APR E/W N	24.0	. 40	14	4 6	12	Bethel	67	50	100	1 80	17	12	g Salm	2	2	13	23	21	19
JAN N N/S	62 6	2 44	9	90 Q	0 00	#51	0	0	0 0	0	10	6	#6 Kin	65	2	9	-5	0	2
E/W	67.0	4 60	16	200	27		0	*	- O	21	23	24		0	*	11	16	21	22
۵	200	200	300	200	100		850	700	2000	200	150	100		850	200	200	300	200	150
g s	1 00 0		_									7		_			_	_	
s/			12	000	0 60		-	es 1	-:	10	6	88		3	40	80	13	10	10
OCT /w w/s		n 60	_	_			1					1				2 8	0	2 1	5
/s E/w N/s	eg -	9	12 1	_	17	,	0	*	111	2 20 10	21	21	0	-2	1		10 1	12 1	15
JULY OCT	2° -	n so	5 12 1	2 2 2 2 4 2	0 17	144°W)	2 0	3 4	4 111	20 1	8 1 21	0 21	163°W)	6 -2	1	100	6 10 1	3 12 1	2 15 1
S E/W N/S E/W N/S	2	n so	13 5 12 1	2 2 2 2 4 2	2 0 17	(70°N, 144°W)	7 2 0	10 3	122 4 111	2 2 20 1	8 1 21	4 0 21	(67°N, 163°W)	3 6 -2	4 8 1		10 6 10 1	8 3 12 1	6 2 15 1
E/W N/S E/W N/S	4 4	- m	5 13 5 12 1	10 2 14	8 2 0 17	Barter (70°N, 144°W)	1 7 2 0	2 10 3 4	112 4 111	12 2 20 1	4 8 1 21	4 4 0 21	Cotzbue (67°N, 163°W)	3 3 6 -2	4 00 1	000	1 10 10 6 10 1	9 8 3 12 1	5 10 6 2 15 1
N/S E/W N/S E/W N/S E/W N/S	400	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	10 5 13 5 12 1	1 2 10 2 14 1	11 8 2 0 17	#2 Barter (70°N, 144°W)	-1 1 7 2 0	3 2 10 3 4	11 4 11 2 4 11	4 12 2 20 1	15 4 8 1 21	14 4 4 0 21	#3 Kotzbue (67°N, 163°W)	-2 3 6 -2	0 5 4 8 1	9 99	11 10 10 6 10 1	14 9 8 3 12 1	15 10 6 2 15 1
4/S E/W N/S E/W N/S E/W N/S	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	7 -6 10 5 13 5 12 1	11 6 10 2 14 1	3 -3 11 8 2 0 17	C4	-1 -1 1 7 2 0	-4 3 2 10 3 4	10 2 12 4 11	-9 16 4 12 2 20 1	5 -9 15 4 8 1 21	2 -10 14 4 4 0 21	14	2 -2 3 3 6 -2	0 0 0	8 8	4 11 10 10 6 10 1	6 14 9 8 3 12 1	7 15 10 6 2 15 1

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

-	JAN				MAINE			OCT	qui	-	JA		APR			LY		LI
	E/W	S/N	E/W	S/S	E/W	N/S	E/W	N/S	_	ET.	M	S/N	E/W	S/N	E/W	S/N	E/W	N/S
850	3	0	10	1	5	4	10	4-	90		10	-	65	4	9	65	0	5
002	00	0	14	21	6	47	14	-4	7	00	2	-	9	9	9	15	100	00
000	14	2	222	50	15	00	20	-1-	100	00	9	10.	10	6	7	9	10	11
000	20	12	28	2	24	01	29	4	3	_	16	00	00	10	10	7	16	14
00	21	111	27	6	23	-1	56	4	20		22	9-	16	9	0	- 4	10	11
50	19	-	23	6	91	-	28	9	-	_	100	-4	10	9	2	. ~	10	101
100	17	6	15	00	2	0	24	20		100	31	9-	13	0.0	2	2 23	20	00
		00 #	McGra	th (63°	McGrath (63°N, 156°W)	(Mo					*	11 An	chora	Anchorage (61°N,	oN, 1	150°W)		
150	9-	-1-	0	4	00	9	17	[2]	850	-	-4	-3	4-	4	6-	4	6-	4
00	6	- 1	0	C	0	c	0	12	200	_					1 6			
000	3 0	, 0	2 0	0	10	. 0	0 0	200	000	_	0 0	10	0 0		7 0	0	7 0	20 0
000	0		- !	0 1	0 1	0 0	0 :	12 .	200	_	0	?	0	10	7	C	0	17
200	18	ï	13	-	1	9	14	11	30	_	-	e-	13	6.	9	9	16	14
000	23	0.2	12	0	00	21	13	1-	20	_	22	-2	17	9	6	21	21	10
20	233	C 3	14	10	9	61	18	00	61	_	7.	-1-	91	9	9	21	21	6
00	28	25	12	9	1		19	-	100	_	25	27	12	i.C	2	61	20	80
		6)	St. Pau	ul (57º	Paul (57°N, 170°W)	(Mo						#12 Y	akutat	Yakutat (60°N, 140°W)	V, 140	(M)		
350	L	4	5	0	00	-0	89	-25	058	0	10	4	IC I	88	23	10	91	=
700	4	10	G:	-	100	4	1.5	67	26	_	-	4	-	0	6-	4	-	1.9
00		00	16	0	c		00	0.00	000	_			+ 0	10	10		, ,	1 .
000		100	240	1 t	0 10	2.0	0.4	0.0	000		1 1	4 0	0 .	- 0	0 .	* 0	01	CT.
000		01.	67	-	01	77 .	47	0 .	300		23	9.	61	23	4	2	55	12
200	1.6	13	23	0	007	_	2.1	-	200	_	2	φ <u>-</u>	1.9	1	00	53	56	7
150	16	-	20	-	12	0	26	2	1.5	_	9	- 20	16	6	7	65	95	7
200													4	3		2		

 $\ensuremath{^{\circ}}$ Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds" (Cont.)

22 15 500 1 -10 5 -4 8 -2 3 3 18 3 4 8 3 50 1 -15 12 -5 11 -4 6 10 334 8 34 18 300 1 -15 12 -5 12 -5 18 18 33 18 3 -4 18 18 32 1 12 -2 3 -3 18 33 18 3 -4 18 18 3 -4 18 18 3 -4 18 3 -	3 15 15 20 2 -4 2 -4 10 10 10 10 10 10 10 1		E W	Z/N	E/WO	W N/S	mp	E/W	JAN E/W N/S	E/W N/	PR N/S	JULY E/W N	00	E/W N	T N/S
22 15 500 1 -10 5 -6 11 -4 6 18 33 1	12 14 700 1 -10 5 -6 11 -4 6 18 33 1 18 18 20 -8 18 18 18 20 -8 18 18 18 18 20 -8 18 18 18 18 18 18 18 18 18 18 18 18 18				85		850	. 2	35		7	20	0		
22 15 300 1 -13 8 -8 16 -6 10 18 29 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -8 18 20 -9 18 20 -19 13 -2 3 -3 18 20 20 20 20 25 -6 19 7 5 9 1 27 20 25 24 2 25	22 15 34 8 -8 16 -6 10 34 8 300 4 -15 12 -8 20 -8 18 29 2 1 150 10 -15 112 -5 12 -5 18 29 2 1 150 20 -19 13 -2 3 -4 18 113 -2 3 -4 18 114 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-			122	1.4	700	-	-10	110	9-	11	7	9	1 00
34 8 300 4 -15 12 -8 20 -8 18 29 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 1 18 29 2 2 1 19 2 2 2 2 2 2 2 2 2 2 2 2 2 2	34 8 300 4 -15 12 -8 20 -8 18 29 29 29 2 1 150 13 -15 13 -5 12 -5 18 18 18 29 29 2 1 150 20 -19 13 -4 8 18 20 20 20 20 -19 13 -2 3 20 10 25 -5 10 11 6 3 3 3 24 4 42 -5 3 200 25 -6 19 7 5 9 1 27 10 25 -8 17 5 9 1 27 20 25 34 0 11 0 27 -10 11 4 4 4 5 2 25	0)		4	22	1.5	200	-	-13	30	20	16	9-	10	4-
29 1 200 10 -15 13 -5 12 -5 18	29 1 200 10 -15 13 -5 12 -5 18	16		4	34	32	300	**	-15	22.1	27-	20	8~	18	4-
29 2 1 150 13 -16 13 -4 8 -4 18 18 13 -2 3 18 18 18 18 19 17 -2 3 700 12 -1 11 6 3 3 14 18 150 25 -8 17 5 9 1 27 150 26 -9 15 0 15 0 1 4 4 5 2 25 34 0 100 27 -10 11 4 4 4 2 2 24	29 2 1 150 13 -16 13 -4 8 -4 18 18 13 -2 3 .3 18 18 18 Whitehorse (61°N, 135°W) 13 -2 10 11 1 1 7 2 3 -1 10 28 -5 300 25 -6 19 7 5 3 26 48 -5 150 25 -8 17 5 9 11 27 3 4 7 2 25 34 150 26 -9 15 4 7 7 2 25 34 150 26 -9 15 4 7 7 2 25 34 150 26 -9 15 4 7 7 2 25 24	9		51	33		200	10	-10	13	1	12	10	18	-
22 1 100 20 -19 13 -2 3 -3 18 18 Whitehorse (61°N, 135°W) 13 -2 850 1 1 1 7 2 3 -1 10 28 -5 500 12 -1 11 6 3 2 10 25 -6 19 7 5 9 1 27 42 -3 150 25 -8 17 5 9 1 27 34 0 100 27 -10 11 4 4 5 2 25	22 1 100 20 -19 13 -2 3 -3 18 13 -2 850 1 1 1 7 2 3 -1 14 -3 500 12 -1 11 6 3 2 10 28 -5 300 25 -6 19 7 5 9 1 27 48 -5 200 25 -8 17 5 9 1 27 34 0 100 27 -10 11 4 4 2 2 25	21		25	29	22	150	13	91-	13	+-	8	4-	18	0
13 -2 850 1 1 1 7 2 3 -1 10 25 W) 28 -5 500 12 -1 11 6 3 3 24 42 -5 150 25 -6 15 42 -3 150 25 -6 15 42 -3 150 25 -9 15 4 4 4 2 2 24	13 -2 850 1 1 1 7 2 3 -1 10 28 -5 300 25 -6 19 7 5 9 1 27 14 42 -3 150 25 -8 17 5 9 1 27 150 25 -9 15 4 2 7 2 25 24	9		23	22	-	100	20	-13	13	-22	23	*3	18	02
13 -2 850 1 1 1 7 2 3 -1 10 28 -5 300 25 -6 19 7 5 9 1 27 42 -3 150 26 -9 15 4 7 7 2 25 34 10 34 0 0 27 -10 11 4 4 4 2 2 24	13 -2 850 1 1 1 7 2 3 -1 10 28 -8 14 48 -5 300 25 -6 19 7 5 9 1 27 42 -3 150 25 -6 19 7 5 9 1 27 42 -3 150 27 -10 11 4 4 5 2 25														
3 13 -2 850 1 1 1 7 2 3 -1 3 17 -3 700 6 1 1 6 3 2 10 0 43 -8 500 12 -1 11 6 3 3 26 0 43 -8 300 25 -6 19 7 5 3 26 1 42 -5 150 26 -9 15 4 7 2 25 1 34 0 27 -10 11 4 4 2 24	3 13 -2	(53°N, 174°E)	-	(H)					82	nitehor	'se (61		35°W)		
3 17 -3 700 6 1 8 6 3 2 10 2 28 -5 500 12 -1 11 6 3 3 14 0 43 -8 300 25 -6 19 7 5 3 26 0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 27 -10 11 4 4 4 2 24	3 17 -3 700 6 1 8 6 3 2 10 2 28 -5 500 12 -1 11 6 3 3 14 0 43 -8 300 25 -6 19 7 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 24	-		m	13	-25	850	-	-	-	1-	2	60		10
2 28 -5 500 12 -1 11 6 3 3 14 0 43 -8 300 25 -6 19 7 5 9 1 27 0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 27 -10 11 4 4 2 24	2 28 -5 500 12 -1 11 6 3 14 0 43 -8 300 25 -6 19 7 5 9 1 27 0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 24	23		55	17	*3	200	9	-	10	9	23	23	10	11
0 43 -8 300 25 -6 19 7 5 3 26 0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 24	0 43 -8 300 25 -6 19 7 5 3 26 0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 2 4	1.4		21	28	- 5	200	123	-	11	9	20	60	14	11
0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 27 -10 11 4 4 2 24	0 48 -5 200 25 -8 17 5 9 1 27 1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 2 24	25		0	43	00	300	25	9-	18	-	0	3	26	1.4
1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 100 27 -10 11 4 4 2 24	1 42 -3 150 26 -9 15 4 7 2 25 1 34 0 27 -10 11 4 4 2 24	26		0	4.8	0.4	200	52	-8	17	2	61	-	27	11
1 34 0 100 27 -10 11 4 4 2 24	1 34 0 100 27 -10 11 4 4 2 24	20		-1-	42	E=	150	26	6-	1.5	*	1	01	25	8
		10		-	34	0	100	2.2	-10	11	4	7	20	24	9
NORTH MANAGEMENT OF B		,									6113				
hsen (79°N, 164°W) #19 Norman Wells (65°N, 127°W)	FIR NOTHIAN WELLS (65 18,	9		27	1	0	830	7	F-	4	-	89	51	9	0
#19 Norman Wells (65°N, 127°W) 1 0 850 7 -4 4 1 3 -2 6	1 0 850 7 -4 4 1 3 -2 6	20		-3	20	-2	700	7	9-	10	0	9	*3	11	0
1 0 850 7 -4 4 1 3 -2 6 10 0 6 -3 11	1 0 850 7 -4 4 1 3 -2 6 3 11 3 -2 6 10 0 6 -3 11	1.2		-4	-	-2	500	14	8-	1.4	0	6	.33	18	21
1 0 850 7 -4 4 1 3 -2 6 10 0 6 -3 11 7 -5 14 0 9 -3 18	1 0 850 7 -4 4 1 3 -2 6 7 -7 -5 10 0 6 -3 11 7 -5 10 0 6 -3 11 11 11 11 11 11 11 11 11 11 11 11 11	1.5		9-	13	-1-	300	19	-12	21	0	1.5	+-	26	4
1 0 850 7 -4 4 1 3 -2 6 7 7 -6 10 0 6 -3 11 7 -2 500 14 -8 14 0 9 -3 18 18 13 -1 26 10 0 15 -4 26	1 0 850 7 -4 4 1 3 -2 6 1 1 3 -2 6 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7		-0-	14	0	200	21	-14	18	0	14	-33	27	es
1 0 850 7 -4 4 1 3 -2 6 7 7 -5 10 0 6 -3 11 8 11 13 -1 18 11 13 -1 18 11 18 0 14 -3 27 21 11 18 0 14 -3 27 21 11 18 0 14 -3 27	1 0 850 7 -4 4 1 3 -2 6 10 0 6 -3 11 11 11 11 11 11 11 11 11 11 11 11 11	+		++	1.5	-	150	24	-13	16	-	10	-1	25	83
1 0 850 7 -4 4 1 3 7 0 6 10 0 6 1 1 10 10 11 11 11 11 11 11 11 11 11 11	1						The second second								

 $^{\circ}\mathrm{Speed}$ is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

	_	_									_									
T N/S	10	11	g 4	0	00			0.		8	8	0 0			-	٠.	2	က	2	2
E/W N	9	15	29	280	38			4	n œ	11	12	12			0	2 2	4	6	11	11
JULY W N/S	2	က	4 11	9	2 2		(2	0	N 4	3	က	7 -		(W)	6	0	7	-4	-2	-
JU E/W	2	2	15	26	21		28 Alert (82°N, 62°W)	4.	4 0	9	1	0 ?		29 Eureka (80°N, 86°W)	6	1 4	9	6	4	1
oR N/S	7	7	4 0	4-	-2		(85°N	0 0	27 15	9	5	es		a (80°)	0		-2	-1	0	0
APR E/W	4	10	20	30	22		3 Alert	-10	7 5	1	4	တ ဆ		Eurek	-	17	-1		4	9
JAN V N/S	6	2	ω -	121	2-1		# 28	1-0	N 10	2	2	e -		# 29	6-	1 -	0	П	-1	-3
J. E/W	9	17	31	43	35			00	O +4	3	4	.c			6-	-21	-1	0	0	4
	1 -	0	00	00	150			850	200	300	200	150			0 0 0	2007	200	300	200	150
qm	850	20	. O	2 0									1		L		_		-	-
qm	850	02	200	2 2]							•		L					_
CT N/S	I				70]				2	0					- 2				_
		3	4.0	2-				-5	7-			33 1 26 1			- C		6-	-11	6-	- 8-
/S E/W N/S	8 11	18 5	29 4	41 -2	-1		123°W)	9 -2	24 -2	40	41			10 ^o W)	α	27	24 -9	38 -11	42 -9	34 -8
/S E/W N/S	0 8 11	4 18 5	7 29 4	6 41 -2	34 -1 26 0		39°N, 123°W)	-4 9 -2	-2 16 -2 0 24 1	1 40	1 41	33 26		o _N , 101°W)	α ~	14 -7	-6 24 -9	~6 38 -11	-4 42 -9	-5 34 -8
/S E/W N/S E/W N/S	6 0 8 11	10 4 18 5	14 5 29 4	23 6 41 -2	6 34 -1 4 26 0		dson (59°N, 123°W)	5 -4 9 -2	9 0 24 1	13 1 40	14 1 41	1 1 33 1 26		as (54°N, 101°W)	\(\alpha\)	-5 14 -7	20 -6 24 -9	33 -6 38 -11	35 -4 42 -9	28 -5 34 -8
/S E/W N/S E/W N/S	4 6 0 8 11	5 10 4 18 5	3 21 5 29 4	0 23 6 41 -2	19 6 34 -1 10 4 26 0		ort Nelson (59°N, 123°W)	-1 5 -4 9 -2	3 9 0 24 1	3 13 1 40	1 14 1 41	12 1 33 8 1 26		The Pas $(54^{\circ}N, 101^{\circ}W)$	2 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	12 -5 14 -7	-5 20 -6 24 -9	-2 33 -6 38 -11	-4 35 -4 42 -9	-2 28 -5 34 -8
//S E/W N/S E/W N/S E/W N/S	6 4 6 0 8 11	11 5 10 4 18 5	18 5 14 5 29 4	24 0 23 6 41 -2	0 19 6 34 -1 1 10 4 26 0		#24 Fort Nelson (59°N, 123°W)	5 -1 5 -4 9 -2	17 3 9 0 24 1	25 3 13 1 40	21 1 14 1 41	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		#26 The Pas (54°N, 101°W)	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-5 12 -5 14 -7	18 -5 20 -6 24 -9	25 -2 33 -6 38 -11	25 -4 35 -4 42 -9	21 -2 28 -5 34 -8
/S E/W N/S E/W N/S E/W N/S	6 6 4 6 0 8 11	2 11 5 10 4 18 5	0 18 5 14 5 29 4 -4 20 3 21 7 42 3	-9 24 0 23 6 41 -2	18 0 19 6 34 -1 13 1 10 4 26 0		#24 Fort Nelson (59°N, 123°W)	-3 5 -1 5 -4 9 -2	-5 17 3 9 0 24 1	-10 25 3 13 1 40	-12 21 1 14 1 41	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			2 8 2 8	10 -5 12 -5 14 -7	-10 18 -5 20 -6 24 -9	-16 25 -2 33 -6 38 -11	-15 25 -4 35 -4 42 -9	-14 21 -2 28 -5 34 -8

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

T N/S	6440000		1011881		97.0887.
OCT E/W	2 6 1 19 22 20 20 19		1 4 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		6 11 19 31 32 29
N/S	1 2 2 2 2 4 4 4 A	(M _o 69	1108881	W)	-7 -10 -11 -10
JULY E/W N	ee ee ee ee		1149902	39 Churchill (59 ⁰ N, 94 ⁰ W)	47-222
N/S	4.6.6.6.6.6.6	Bay (1000040	11 (59°)	999879
APR E/W N	4 6 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	35 Frobisher Bay (64°N,	112 115 115 129 9	nurchil	31 31 28 28
JAN V N/S	3304034	55 Fro	0 0 10 0 0 0 7	#39 CI	111111111111111111111111111111111111111
E/W	20724081	-	2 4 4 4 5 1 1 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1		6 111 24 25 25 26
qw	850 700 300 300 150		850 700 500 300 200 150 100		850 500 300 200 150
OCT E/W N/S	0 4 8 8 1 8 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9		24 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		10 10 10 10 10 10 10 10 10 10 10 10 10 1
-	-	(A)		W)	
JULY W N	4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4, 81°W)	4 66- 44- 44- 44- 44- 44- 44- 44- 44-	N, 96°W)	100 1 100 1
/S E	-	J ₀ 69)		(64°)	3 0 1 1 1 1 1 1 1 0 1 0 1 0 1 0 1 0 1 0
APR/W/N/	8977445	Beach (69 ⁰ N,	0	Lake (64°N,	4- 01- 00- 00-
E/W	249011		4 8 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Baker	6 11 19 27 20 20
JAN W N/S	462544	#31 Ha	9 H 4 8 8 H 4	#33]	-6 -6 -6 -9 -12
J/E/W	0011492		0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		3 11 15 16 19
	850 700 300 300 150		850 700 500 300 200 150 100		850 700 500 300 200 150

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

														_								
T N/S	4		-3	-7	2-	. r		5	2	7	- 8-	יי כ	. 2.			0	-2	-31	9-	6-	9-	
E/W I	0	10	22	30	34	23		7	16	27	38	1 50	25			2	11	21	30	33	32	00
N/S	0	0 00	10	15	21	20	(M)	3	2	6	15	12	0.1		(.)	-3	2	11	16	21	16	c
JULY E/W N,	7	- ∞	17	28	37	12	Spokane (48°N, 118°W)	5	11	21	37	3 5	15		116°W)	2	6	21	35	44	39	
R N/S	1-	-2-	9-	-12	-10	2 27	(48°N	9	4	61 .	7 %	200	۱		(44°N,	-4	-4	0	-1	e-	0	0
APR E/W N	2	10	21	30	233	20	pokane	7	11	18	22	21	15		50 Boise (44°N,	4	11	18	25	28	24	
N/S	000	21	-3	-7	-111	8-	#49 S	10	e2 (۳ ·	-10	-12	6-		# 50	4	-2	9-	-13	-15	-111	•
JAN E/W N	9	22	35	47	7 4 7	28		12	22	37	51	40	31			4	20	35	20	49	39	0
qm	850	200	200	300	200	100		850	200	500	300	150	100			850	200	500	300	200	150	
OCT E/W N/S					6 6						-2							6 2				
Y N/S E/W N	11	17	28	44	8 44 6 36 7	26	(M _o	13	21	31	-1 45 0 -4 47 -2	41	28		(M ₀ (16	24	6 36 2	47	53	44	00
/S E/W N	1 11	1 17	4 28	8 44	44	3 26	ON, 76 ^O W)	2 -1 13	9 -2 21	7 -3 31	0 1 4	4 -2 41	6 -2 28		(N, 60°W)	5 16	4 24	36	8 47	6 53	4 44	00
/S E/W N/S E/W N	11 1 11	17 1 17	24 4 28	37 8 44	8 44	13 3 26	aki (46°N, 76°W)	12 -1 13	19 -2 21	27 -3 31	4 -4 47	34 -2 41	16 -2 28			15 5 16	21 4 24	6 36	41 8 47	44 6 53	34 4 44	00
/S E/W N/S E/W N	-4 11 1 11	-2 17 1 17	1 24 4 28	6 37 8 44	37 8 44 97 6 36	5 13 3 26	Maniwaki (46°N, 76°W)	-2 12 -1 13	-5 19 -2 21	27 -3 31	44 -4 47	-6 34 -2 41	-4 16 -2 28		ble Island (44°N,	-3 15 5 16	0 21 4 24	30 6 36	4 41 8 47	2 44 6 53	0 34 4 44	
I/S E/W N/S E/W N/S E/W N	2 -4 11 1 11	5 -2 17 1 17	11 1 24 4 28	21 6 37 8 44	5 37 8 44	12 5 13 3 26	$\#44$ Maniwaki (46^{O} N, 76^{O} W)	7 -2 12 -1 13	15 -5 19 -2 21	28 -8 27 -3 31	-10 44 -4 47	33 -6 34 -2 41	23 -4 16 -2 28			10 -3 15 5 16	18 0 21 4 24	2 30 6 36	41 4 41 8 47	41 2 44 6 53	32 0 34 4 44	000
/S E/W N/S E/W N/S E/W N	-7 2 -4 11 1 11	-2 5 -2 17 1 17	2 11 1 24 4 28	8 21 6 37 8 44	16 5 37 8 44	9 12 5 13 3 26		-4 7 -2 12 -1 13	-4 15 -5 19 -2 21	-6 28 -8 27 -3 31	39 -10 44 -4 47	0 33 -6 34 -2 41	0 23 -4 16 -2 28		45 Sable Island (44°N,	-2 10 -3 15 5 16	0 18 0 21 4 24	28 2 30 6 36	4 41 4 41 8 47	0 41 2 44 6 53	2 32 0 34 4 44	000

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

	1	_	-							_			1							
T. N/S	8-	8-	-7	-5	9-	4 4		-2	9-	80	9 15	.5			-		0	-2	-2	-2
E/W N	6	14	56	36	40	24	(A	111	28	41	44	25		_	13	20	30	43	46	40
S/N	2	-2	-3	-3	4.	4 67	, 93°v	2-9-	-10	-14	-14	1 80		84° W	5	14	-7	-11	-15	-12
JULY E/W N	4	14	22	40	52	16	(49°N	11	26	41	38	19		46°N,	=	18	28	38	46	34
R N/S	-5	-5	0	4	4.0	2 01	Falls	2-4-	-5	ر. د	m m	<u>ب</u>		larie (-	• ကု	9-	-7	ا	-5
APR E/W N	7	12	21	30	35	23 2	55 International Falls (49 ^o N, 93 ^o W)	4 11	22	35	34	22		56 Saulte Ste Marie (46°N, 84°W)	7	14	26	42	45	35
/s	-7	-12	-13	-18	-14	n φ	Interna	6-	-12	-15	-13	-11		Saulte	6	4-	-5	-4	-3	-4
JAN E/W N	111	22	35	20	20	35	#55 1	12 20	32	47	46	37		# 56	13	22	35	54	55	20
qm	850	200	200	300	200	100		850	500	300	200	100			058	200	200	300	200	150
OCT E/W N/S						24 -3		6- 81								14 -6				
/S E/W	15	18	28	40	30	3 24 -3	(M _o 1		28	80:	38	26		01°W)	-	14	23	33	41	39
S E/W	2 15	2 18	6 28	8 40	10 39	24	M, 101°W)	10	-7 28	38	-7 44	-5 26		1°N, 101°W)	2		-6 23	-7 33	-8 41	-10 39
/S E/W N/S E/W	6 2 15	13 2 18	27 6 28	42 8 40	53 10 39	3 24	rk (47 ⁰ N, 101 ⁰ W)	-1 10	28 -7 28	43 -8 38	54 -7 44	18 -5 26		latte (41°N, 101°W)	2 8 7	0 14	16 -6 23	34 -7 33	42 -8 41	36 -10 39
S $ S $ $ S $ $ S $ $ S $ $ S $ $ S $ $ S $ $ S $ $ S $ $ S $	0 3 6 2 15	2 -3 13 2 18	8 -1 27 6 28	6 1 42 8 40	5 1 53 10 39	17 3 24	Bismark (47 ^o M, 101 ^o W)	4 -3 7 -1 10 1 -5 16 -5 18	2 -3 28 -7 28	1 0 43 -8 38	0 44 -7 44	2 -1 18 -5 26		orth Platte (41°N, 101°W)	7 8 5 6-	4 -3 8 0 14	4 2 16 -6 23	7 34 -7 33	4 10 42 -8 41	5 36 -10 39
APR JULY OC APR JULY OC APR	10 3 6 2 15	12 -3 13 2 18	18 -1 27 6 28	26 1 42 8 40	25 1 53 10 39	6 2 17 3 24	1,000	4 -3 7 -1 10 1 -5 16 -5 18	22 -3 28 -7 28	31 0 43 -8 38	34 2 54 -7 44 28 0 44 -7 38	22 -1 18 -5 26		#53 North Platte (41°N, 101°W)	2 2 2 2	4 -3 8 0 14	24 2 16 -6 23	38 7 34 -7 33	44 10 42 -8 41	39 5 36 -10 39
(S E/W N/S E/W N/S E/W	7 10 3 6 2 15	-5 12 -3 13 2 18	-11 18 -1 27 6 28	-17 26 1 42 8 40	-15 25 1 53 10 39	16 2 17 3 24	52 Bi	4 -3 7 -1 10 11 -5 16 -5 18	-15 22 -3 28 -7 28	-18 31 0 43 -8 38	-15 34 2 54 -7 44 -19 28 0 44 -7 38	-11 22 -1 18 -5 26		53 Nor	7 5 5 5 7	14 -3 8 0 14	-11 24 2 16 -6 23	-13 38	-10 44 10 42 -8 41	-7 39 5 36 -10 39

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

				_	_		_		_	7		_		_			_
T N/S	0 8 9	၁၈ မ	O 44 •	r	-2	-2	٠, c	0 0	9-	4		-2		2 6	17	-	-2
OCT E/W N	13	46	51 44	10	2	9	15	23	29	21		2	ر د	98	37	36	20
S/N/S		4 00 4	40		0	9	ω;	22	22	-	(M _c	-2	<u>- 1</u>	14	22	20	c
JULY E/W N/	10	37	33.	#61 Oakland (38°N, 122°W)	5	4	o .	24	24	9	$\#62 \text{ San Diego } (33^{\circ}\text{N}, 117^{\circ}\text{W})$	4	010	10	10	6	-3
R N/S	990	-1-	-12	(38°)	4-	-5	-10	-12	9-	7	, (33°)	-3	2,0	7 -	4 00	9	9
APR E/W N	12 22 22	50	51	akland	9	10	20	39	36	52	n Diege	7	13	4.5	52	20	3.4
/s	19 29 0) m -		#61.0	0	-3	9-	-14	-12	0,1	62 Sar	5-	ري د -	0	6-	9-	-4
JAN E/W N	19	73	62	F	-	15	28	4 4 7 7 2	42	23	11	4	12	2 2 2	49	47	33
qm	850	300	150	001	850	200	500	200	150	100		850	200	300	200	150	1001
T/N/S	2.5	2 10	4 4 .	r	5	1		2 21	2	-		ကို	2.	4 10	0 0	1	-
OCT W N									_							23	90
E/W	113	40	44	0 1	15	21	00	47	4	53		14	22	2 2 2	500	4	
S	-2 12 -6 19			o l				4 4 7			()	_	1 22			_	6
S		-13	-13	o l	-1	7	7 0		-2	87	(, 68 ^o W)	0	_	2 00	- LC	22.0	
/S E/W N/S	299	40 -13	50 -13 40 -14	o l	12 -1	17 -1	25 -1	77-	32 -5	17 -3	(47°N, 68°W)	12 0	1 0	30 3	46	36 5	16
S/W N/S	10 -2	-4 25 -10 -2 40 -13	-2 40 -14 -2 40 -14	o l	-1 12 -1	-4 17 -1	-7 25 -1	42 -7	-6 32 -5	-3 17 -3	aribou (47°N, 68°W)	-6 12 0	19 1	-6 50 3	-5 46	-3 36 5	-1 16
APR JULY JULY E/W N/S	-2 10 -2 -3 15 -6	23 -4 25 -10 36 -2 40 -13	41 0 50 -13 34 -2 40 -14	3 Buffalo (43°N, 79°W)	13 -1 12 -1	22 -4 17 -1	33 -7 25 -1	-9 42 -7	39 -6 32 -5	27 -3 17 -3	#59 Caribou (47°N, 68°W)	8 -6 12 0	-6 19 1	36 -6 43 8	36 -5 46 5	29 -3 36 5	91 16
S E/W N/S E/W N/S	14 -3 15 -6	-14 23 -4 25 -10 -15 36 -2 40 -13	-11 41 0 50 -13 -10 34 -2 40 -14	#58 Buffalo (43°N, 79°W)	1 13 -1 12 -1	-2 22 -4 17 -1	-2 33 -7 25 -1	49 -9 42 -7	-1 39 -6 32 -5	-1 27 -3 17 -3	59	-6 8 -6 12 0	14 -6 19 1	5 36 -6 43 8	3 36 -5 46 5	4 29 -3 36 5	4 21 -1 16

 $^*\mathit{Speed}$ is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

7 Columbia (39°N, 92°W) 7 Columbia (39°N, 92°W) 7 Columbia (40°N, 84°W) 68 Dayton (40°N, 84°W)
1-404484 8 8021-224 0 1-10

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

OCT W N/S	-2	0	2	4	00 0	2 01		0	2	8	9 0	20	0				0	-	2	-	1	
E/W	6	16	26	39	0 4	28		4	11	22	36	43	56				2	10	19	33	45	41
LY N/S	-2	0	~	7	4.	r e7	16°W)	23	8	e	~	* 4	9 67		(Mo		67	2	2	0	IC.	1
JULY E/W N	2	14	20	30	460	11	35°N,	00	12	14	12	113	- 1		N, 80		2	80	00	2	8	
R N/S	4-	-5	-5	6-	41-	-12	eras (3	67	-3	9-	-10	-10	-7		on (33°		7	-2	-5	00	-13	
APR E/W N	14	22	36	90	62	34	#75 Cape Hatteras (35°N,	13	23	37	55	57	40		#76 Charleston (33°N, 80°W)	1	12	20	35	51	64	2 2
JAN N/S	9-	-1	2	9	20	2 62	75 Cap	-	2	4	000	00	20		176 Ch	1	3	က	4	80	00	0
E/W	18	31	51	77	33	52	*	19	33	54	77	72	28				17	29	48	74	87	20
qm	850	200	200	300	200	100		850	200	200	300	150	100				850	200	500	300	200	0 0
	_	_	_	_	_	_		_		_	_	_		,		_	_	_	_	_	_	
S/N /	67	-1	-	4	N 4	0		-	0	~ (00	000	0			1	1	-1	0	1	0	
OCT E/W N/S	-2	2	6	27	39	16					38									35 1		
/S E/W N	-2	2	6	27	39		(M _c	80	13	23		46	27		(Mo			6	19	35	47	44
S E/W N	-2	6 2	6 0	-6 27	39	-7 16	'N, 87°W)	8 0	-1 13	-3 23	300	-13 46	-6 27		N, 94°W)		4	1 9	-3 19	-10 35	-13 47	-12 44
/S E/W N/S E/W N	-4 16 -2	-6 6 2	-6 0 9-	-8 -6 27	-13 -9 34	-7 16	le (36°N, 87°W)	8 0 8	9 -1 13	-3 23	-11	22 14 -13 46	3 2 -6 27		ort (32°N, 94°W)		3 4 4	1 1 9	0 -3 19	-10 35	-2 -13 47	-4 -13 44
/S E/W N/S E/W N	16 -4 16 -2	8 -6 6 2	4 -6 0 9.	7 -8 -6 27	19 -11 -7 39	-19 -7 16	ashville (36°N, 87°W)	8 0 8	1 9 -1 13	1 11 -3 23	2 20 -11 50	-2 14 -13 46	3 2 -6 27		reveport (32°N, 94°W)		3 4 4	3 1 1 9	5 0 -3 19	8 -2 -10 35	6 -2 -13 47	5 -4 -13 44
APR JULY OCT	0 16 -4 16 -2	9 8 -6 6 2	8 23 4 -6 0 9.	50 7 -8 -6 27	7 63 19 -13 -0 34	9 -19 -7 16	#71 Nashville (36°N, 87°W)	14 3 8 0 8	22 1 9 -1 13	38 1 11 -3 23	-2 20 -11 50	60 -2 14 -13 46	33 3 2 -6 27		#72 Shreveport (32°N, 94°W)		9 3 4 4	19 3 1 1 9	34 5 0 -3 19	57 8 -2 -10 35	72 6 -2 -13 47	66 5 -4 -12 44
S E/W N/S E/W N/S E/W N	8 0 16 -4 16 -2	6 9 8 -6 6 2	8 23 4 -6 0 9.	16 50 7 -8 -6 27	17 63 19 -13 -0 34	1 36 9 -19 -7 16	Nas	0 14 3 8 0 8	0 22 1 9 -1 13	3 38 1 11 -3 23	56 0 17 -8 38	5 60 -2 14 -13 46	3 33 3 2 -6 27		72 Shre		10 9 3 4 4	1 19 3 1 1 9	4 34 5 0 -3 19	10 57 8 -2 -10 35	10 72 6 -2 -13 47	7 66 6 -4 -13 44

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

OCT W N/S	64	64	0	63 .	4 .	4 10			00	0	00	* *	15			4	49	0	9-	0)	80
E/W	80	4	9	4	10	0 0			2-	2 15	0	4 4	7			113	121	7	0	-	t=
S/N	82	00	-	0		9 4		(Mo	40 10	2 63	*	200	7		(W)	4	- 40	00	60	2-	9-
S/W N/	-16	-12		7	· Q	-14		86 Swan Island (17°N, 84°W)	-21	-10	0	čis s	17 0		87 Kingston (18°N, 77°W)	-33	2 40	90	60	13	11
R/N/S	23	-1	7		*	7 5		71) bm	4-	. 4	7	0.	7		n (18°	-	. 0	io.	80	60	-2
APR E/W N	-10	7	9	24	36	14.2		an Isla	-12	12 0	19	30	10		Gingsto	117	1 1	100	24	37	36
JAN W N/S	0	61	00	4	13	(- ef		#86 Sw	7-	+ ers	1-	4:	9 9		# 87 %	0	90		69	10	9
E/W	6-	27	2	24	99	34			-10	0 00	23	67 C	16			0.5	120	00	23	63	36
qu	850	200	500	300	200	100			850	000	300	200	100	1		05.0	2002	200	300	200	150
	T	_		_			1				_			7						_	_
T/N/S	2	101	0	-1-	-5	77			010	00	64	0	7	1		T.	00	-	-22	2-	6-
OCT W W																					
E/W N	4	67	80	21	32	11			-0.		10	14	200		W)	0	5 2	000	65	2	10
LY OCT	. 4-	4	1 8	-4 21	32	-10 29		(W)	-0.		10	14			63°W)	0	5 2	000	65	2	
Y OCT	-5 5 -4	4	1 8	-4 21	32	11		(, 90°W)	67 6	20	0 10	-1 14	200			4	4 - 6	- 23	1 3	0 2	10
/S E/W N/S E/W N	-5 5 -4	4	-2 1 8	-6 -4 21	-9 -8 32	-10 29		a (21°N, 90°W)	-13 3 -5	-8 0	-1 0 10	-1 14	-4 60	1		-10 4 -0	14 4	P 01	30	11 0 7	0 10
S E/W N/S E/W N	-5 5 -4	-4-4-2	-6 -2 1 8	-9 -6 -4 21	-12 -9 -8 32	-10 -10 29		Merida (21°N, 90°W)	6 -13 3 -5	-11 -8 0	8 -1 -1 0 10	-1 3 -1 14	-14 -4 3		Airfield (18°N,	0 18 4 0	14 4	-2 -2	1 -7 3	3 -6 11 0 7	01 0 6
APR JULY OCT E/W N/S E/W N	3 -1 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	6 -3 -4 4 2	19 -6 -2 1 8	37 -9 -6 -4 21	55 -12 -9 -8 32	-10 -10 -10 29		#81 Merida (21°N, 90°W)	-9 6 -13 3 -5	-11 -8 0	28 -1 -1 0 10	36 -1 34	8 1 -14 -4 3		Airfield (18°N,	0 0 18 4 0	20 T T T T T T T T T T T T T T T T T T T	- C1	31 -7 3	43 -6 11 0 7	01 0 6 8- 9
APR JULY OCT S' E/W N/S E/W N	2 -1 - 2 -1 - 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 - 2 2 2 2 2 2 2 2 2 2 2 - 2 - 2 2 2 2 2 2 2 2 2 2 2 - 2 2 2 2 2 2 2 2 2 2 2 - 2 2 2 2 2 2 2 2 2 2 2 - 2 2 2 2 2 2 2 2 2 2 2 - 2	-3 -4 4 2	4 19 -6 -2 1 8	5 37 -9 -6 -4 21	7 55 -12 -9 -8 32	53 -10 -10 -10 29 35 -8 -14 -5 11		18	-13 3 3	- 11- 2- 0 - 11- 2- 0	10 28 -1 -1 0 10	9 36 -1 3 -1 14	8 18 1 -14 -4 3 -			1 0 0 110	2 4 4 4 4	- C - C - C - C - C - C - C - C - C - C	-10 31 -7 5 1 3	-10 43 -6 11 0 7	36 -8 9 0 10

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

T N/S	49	01	01	0	00		4	en e	30	99	10	0		62	0	7	64	28	-	0
E/W D	40	0	15	91	18		0	* 0	22	28	24	20		89	10	19	28	29	28	200
LY N/S	100	101	00	60	e ro	(M)	28	0 0	200	7	0	-	8°W)	0	946	61	6.9	49	ut)	8
JULY E/W N/	e9 e1	00	60	ca -	7	N, 23	-	0	3.5	16	12	20		0	esi	4	£=	9	10	0
N/S	70	100	ţ=	99 .	- cs	ik (64°	100	10 G	20	9	08	0	yen (7	-1	0	7	2	89	em 1	29.0
E/W N	62 4	10	12	4	2 22	122 Keflavík (64°N, 23°W)	041	- 4	23	17	2.5	13	Jan Mayen (71°N,	25	£-	14	24	22	00	ce
N/S	89 -	07	89	en .	-3-	#122	60	D (200	12	11	0	#124	64	60	69	-4	0	7	0-
E/W	10 00	14	13	20	140		2.	40	5) 65	23	24	62 08		64	9	1.4	63	28	e=6 070	9.00
	100.0	0	0	0	00		0	25	2 9	200	0	0		80	00	200	00	200	20	5
qu	850	2000	30	20	101		80	77	0 80	2	-			80	2	63	8	5.00	_	**
E/W N/S	04 0	0 0	4-4	6,			8	- 0	0 -	7 -2	9	-2	W)	4	*	-6 11 3-	200	-Q-	10.	0
/S E/W N/S	-10 2	10	2 4	89	2 -4		-11 3	p) e	2 - 0	• 69	10 -3	4 -2	(M ₀ 69 ')	-12 4	-10 4	1	en en	1115	14 -5	0 0
/S E/W N/S	-10 2	0 0	1 2 -4	8 .	1 2 -4	, 62°W)	2 -11 3	- C	7	200	2 10 -3	1 4 -2	(12°N,	5 -12 4	6 -10 4	-6	e e	-1 11 -5	-4 14 -5	8 9
N/S E/W N/S E/W N/S	-10	0 0 0	4 1 2 -4	11 1 8 -9	-9 -1 2 -4		-18 2 -11 3	D 0 0	7-	10 3 7 -2	2 9 2 10 -3	-12 1 4 -2	(12°N,	-20 5 -12 4	-19 6 -10 4	2 -6 1	-2 3 3 -3	7 -1 11 -5	10 -4 14 -5	8 8 8
/s E/w N/s E/w N/s	11 18 2 10 2	-2 -8 1 -9	-5 4 1 2 -4	0 11 1 8 -9	-9 -1 2 -4	Raizet (16°N,	2 -18 2 -11 3	1 0 0	7 - 7	1 10 3 7 -2	-2 9 2 10 -3	-5 -12 1 4 -2	Plesman AP (12°N,	2 -20 5 -12 4	2 -19 6 -10 4	-14 2 -6 1	0 -2 3 3 -3	7 7 -1 11 -5	4 10 -4 14 -5	8 8 8
//S E/W N/S E/W N/S E/W N/S	11 18 2 10 2	8 -2 -8 1 -3 0	32 -5 4 1 2 -4	47 0 11 1 8 -9	-1 9 0 11 -10 -7 -9 -1 2 -4	zet (16°N,	-12 2 -18 2 -11 3	1.00	D	-1 10 3 7 -2	38 -2 9 2 10 -3	17 -5 -12 1 4 -2	Plesman AP (12°N,	-15 2 -20 5 -12 4	-6 2 -19 6 -10 4	-2 -14 2 -6 1	15 0 -2 3 3 -3	23 7 7 -1 11 -5	24 4 10 -4 14 -5	B
E/W N/S E/W N/S E/W N/S	1 - 9 - 1 - 18 - 2 - 10 - 2 - 10 - 2	-3 -8 -2 -8 -9 -9 -9	-7 32 -5 4 1 2 -4	-2 47 0 11 1 8 -9	22 -7 -9 -1 2 -4	Raizet (16°N,	0 -12 2 -18 2 -11 3	1 6 2 2 1	2 2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	44 -1 10 3 7 -2	-4 38 -2 9 2 10 -3	-4 17 -5 -12 1 4 -2	esman AP (12°N,	2 -15 2 -20 5 -12 4	3 -6 2 -19 6 -10 4	0 -2 -14 2 -6 1	-1 15 0 -2 3 3 -3	9 23 7 7 -1 11 -5	3 24 4 10 -4 14 -5	-3 10 3- 15 11 5-

Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

								_				_					_	_				
	S/N	66	4	4	1	0 07		073	99	m	04	-	77			10	-2	9-	-11	and and	e0	9-
	E/W N	132	26	38	36	30		80	12	(Per enti	23	24	- CO -	0.7		22	20	24	89	100	255	61
(W)	N/S	mm	4	4	er)	es es	(M	0	0	100	1.	0.0	0 -	-	13°E)	64	4	49	1075	4	47	4
N, 10	E/W N/	129	16	23	20	es de f=	N. 00	60	122	89	26	26	er c (0) =	:		0	10	4	20	20	14	gr.
ck (60	S/S	614	-	-12	-10	ep ==	ey (51	89	2	9=	6-	-10	E- 10		org (5	0	0	0	23	20	63	-23
128 Lerwick (60°N, 1°W)	E/W N	10 0	13	19	17	W C1	Crawley (51°N, 0°W)	9	10	92	21	60 eri	e4 e	:	Jaegersborg (56°N,	9	63	74	20	16	20	10
4	S/N	[- 4	01	-7	2	77	#129	64	0	ņ	80	-10	ep e		130 Ja	00	-1	7	0,1	-111	-11	
	E/W N	9 01	16	63	60	80 =4 74 95		39	22	16	63	9	24		*	10	89	8=0 8=0	E-1			
	qui	850	200	300	200	100		850	700	200	300	200	130	200		859	200	200	300	200	150	100
	TN/S	1 2	7	E	-1	-10		2-	2	-3	-	e9 (79 =	-		60	99	9	100	63	-	0
	E/W N/	2 11	2	17 00	17	126	(M _c	10	50	20	28	60	23			13	2.1	533	32	33	26	19
(E)	S/N	64 44	100	10	6-	Ø 10	N, 10	0	7	58	NO Y	9	m c		(M ₀ 9	0	0	-	27	69	0	-
noya (75°N, 19°E)	E/W N/	40	10	14	and I	(* 4	bservatory (52°N, 10°W)	10	13	20	138	17	120			12	14	20	28	36	20	10
ya (75°	PR N/S	77	9	9	9	99	rvator	- 62	7	-	52	-11	10 P		Kesh (54°N,	69	*	-	-11	-10	89	9-
Bjorno	E/W	61 60	65	18	50	189	0	10	11	13	21	20	40		Long Ke	50	0	14	20	18	14	10
#1251	N/S	ရှာ ကို	6.	-12	-	-10	+126 Valentia	\vdash	_	-	_	_	10	4	#127 L	9	_	_	_	_	_	_
	JAN E/W N	2 2	20	22	120	31	#126 V	11	13	20	29	500	24			6	12	17	26	29	27	27
	qu	850	200	300	200	100		850	200	200	300	200	150			850	1001	200	300	200	150	100

"Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

N/S	24 2	2 4	-10	-10	89	9-		24	0	4	ap 6	20 8	- 9				2	4	20	erd erd e	-12	-12	111"
E/W N/	14	22	3.9	36	30	23		13	Pe :	24	20 0	100	20			-	90	12	20	30	30	28	26
50	24 (Na sc	9	165	10	4	(H _o	40	10	9		10	3 49		(OE)	1	-yr	4	in)	(m	9	10	45
E/W N/	91	13	30	17	60	9	N, 12	e-	10	13	20 *	5.0	9 9		o. 27		19	10	10	45	130	0	ď
R N/S	0.	ne (t	8 61	-	20	°2	rg (58°	04	0	7	7	20	1 10		rla (67		6.0	0	20	100	9-	-1	0-
E/W N	00 1	13	20	2.1	op.	13	137 Goteborg (58°N, 12°E)	100	80	20	30		10		Sodankyla (67°N, 27°E)		4	30	10	22	20	99	4 60
JAN N/S	0	1	-112	E med	-12	and .	#137	99	7	7	9	-10	7		138		pré :	7	6-	1	-12	-12	04
E/W	101	1.5	2 0	21	100	2.5		49	9	pril pri	E* (20	4 60				10	22	100	200	54	62	0.0
-			-	and the last	-			jenner	-	otiges	NO. INC.	-		and .		- 1	0	0	0	0	0	0	7
quu	850	700	2000	200	130	100		850	700	300	300	200	100				000	70/	200	30	20	15	100
E/W N/S	02 -	1 3	7		120	9-			0	-1-	4-	0,5	26 -5 100		8		10 0 850	27	9.	6.	-10	60,	- 00
/s E/W N/S	123	1.00	200	246	100	30 -6	(3 _o	15 1	10 01	27 -1	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	000	2 10		(, 11°E)		0	16 ~2	24 -6	98	35 -10	30 -8	0.0
S E/W N/S	7 123	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	200 001 00	3 10 34 -	31 -2	5 6 30 -6	'N, 10°E)	4 15 1	0 61 2	10 27 -1	100	000	26 -5				10 01	4 16 ~2	5 24 ~6	98 38	7 35 -10	8 30 -8	00 00
S E/W N/S E/W N/S	7 7 12 3	200000000000000000000000000000000000000	200 000 000	13 10 34	10 s	5 6 30 -6	let (64°N, 10°E)	8 4 15 1	0 61 2 01	12 10 27 -1	17 15 32 -4	000	25.00				3 10 0	6 4 16 ~2	12 5 24 -6	19 8 36 -9	18 7 35 -10	13 6 30 -8	0 00 0
JULY OCT E/W N/S E/W N/S	21.12	20 00 00 00	20 20 20 20 20 20	13 10 34	10 8 31	-8 5 6 30 -6	Orlandet (64°N, 10°E)	2 8 4 15 1	0 10 7 19 0	-2 12 10 27 -1	-5 17 15 32 -4	000 000	7 6 26 -5		ermoen (60°N,		0 2 3 10 0	5 -1 6 4 16 -2	1 -3 12 5 24 -6	7 -6 19 8 36 -9	5 -6 18 7 35 -10	-5 13 6 30 -8	0 00 0
//S E/W N/S E/W N/S E/W N/S	21.7	1- 81 8 6 0 6	12 22 24 27 27	19 34 -5	-6 10 8 31 -5	18 -8 5 6 30 -6	#132 Orlandet (64°N, 10°E)	6 2 8 4 15 1	0 61 7 01 0 6	12 -2 12 10 27 -1	14 -5 17 15 32 -4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	26 26 -0.0		ermoen (60°N,		0 2 3 10 0	5 -1 6 4 16 -2	11 -3 12 5 24 -6	11 17 -6 19 8 36 -9	15 -6 18 7 35 -10	14 -5 13 6 30 -8	0 00 0 0
E/W N/S E/W N/S E/W N/S	3 6 3 7 7 122	1- 22 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	A 20 20 20 20 20 20 20 20 20 20 20 20 20	-12 13 10 34 -5	18 -6 10 8 31 -5	-14 18 -8 5 6 30 -6	#132 Orlandet (64°N, 10°E)	3 6 2 8 4 15 1	0 61 7 01 0 6 11	-2 12 -2 12 10 27 -1	-5 14 -5 17 15 32 -4	000 000	10 14 -6 7 6 26 -5				1 0 2 3 10 0	0 5 -1 6 4 16 -2	-4 11 -3 12 5 24 -6	-11 17 -6 19 8 36 -9	-12 15 -6 18 7 35 -10	-12 14 -5 13 6 30 -8	8 98 9 8 8

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds? (Cont.)

E/W N/	N/S	E/W	N/S	JULY E/W N	LY N/S	E/W N/S	S/N	qu	E/W	JAN W N/S	APR E/W N	PR N/S	E/W		LN N/S	JULY OCT
9	-	4	67	4	67	122	27	850	_	23	-	61	33		6.1	-
10	51	00	67	10	CE	13	-3	200	_	2,2	10	#10	12		21	1
14	9-	14	*	63	073	22	6-	200	_	-7	13	52	17		-	_
21	-13	20	9	13	9	500	-13	300	_	-12	19	10-	23		0	1
23	-14	50	61	14	+	29	-13	200	_	-12	17	+-	26		0	1
23	-14	16	-	10	02	27	-14	150	21	-11	91	-23	22		~	1 18
29	-17	14	7.	4	01	24	-11	100	_	6,	12	0	12		~	7
	#141 Brest	- Allendar	ipavas	Guipavas (48°N,	4°W)					-	Trap	Trappes (49°N, 2°E)	ON, 2	E		
==	47	9	-23	9	-2	1	100	850	30	50	1-	7	9	-	10	-
123	gard.	10	07	111		10	4	200	11	0	10	-	12			-
20	7	14	-2	202	-7	133	*	200	17	7	15	7	18		0	0 15
30	9-	20	-12	26	77	17	-	300	23	6-	22	0-	25	,	_	1
30	00	20	-12	29	-52	21	00	200	233	-10	20	-7	27	7	-	-
26	9-	16	-1	24	0	18	- 22	150	24	200	16	7-	23	•	_	***
23	9-	12	10	133	1	13	-23	100	23	1.	133	-3	14			-
*142	#142 Bordeaux	eaux/y	lerign	/Merignac (45°N, 1°W)	N. 10	(3)				*14	46 Nim	146 Nimes (44°N, 4°E)	N.	E)		
111	7	80	-1	9	-	9	50	850	-	97	-	20	100	17	1	+
138	-4	10	25	13		1	2	200	_	-7	-	29-	100	-4		-
00		14	10	10	0	10		200	_	-	- 4	9-	180	7		-
23	-13	20	-10	27	0	13	7	300	20	-19	20	00	26	1		_
2.2	-14	22	-10	33	0	14	-4	200		-18	22	9-	33	i		-
26	-111	10	10.	30	1	14	20-	150	_	-14	20	7-	28	1		-
22	- 20	1.4	-3	17	2 1	13	-2	100	_	-	1.4	6-	13			-

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

			_	-	_									1							
T N/S		7 67	-7	0, 1	-5-		01	0 0	7 15	-	-5	4-		0	0	7	-5	8-	6-	-7	9
E/W N/	1-9	11	14	15	14		10	13	24	24	20	16	E)	0.	01	14	18	22	22	20	15
S	7.	77	-1	27	0 21	(E)	-	- 0	10	2 63	3	3	i, 13°		٥.	_	5	3	2	33	33
JULY E/W N	00 5	14	20	57	11	N, 10	=	13	23	22	16	6	(52°)		5 .	11	14	19	19	14	-
R N/S	7.0	00	0	67	-1-	er (52	0	7	00	4-	53	-2	pelho	0	0	0	-	1	-1	-1	-
APR E/W N	00 5	15	21	21	14	#153 Hannover (52°N, 10°E)	6	11	21	18	14	12	#154 Berlin/Tempelhof (52°N, 13°E)	1	- :	11	15	20	1.9	13	111
N/S		91	-10	-13	-113	# 153 1	2	2.5	-12	-12	-111	-11	4 Berl	1	0 0	-2	10	6-	-12	-11	-111
JAN E/W N/	6.5	14	18	1.7	19					20		1	#15	0	0	00	11	14	17	19	21
		~ ~	00	00	00		50	00	000	200	150	100		1	00	00	00	00	00	150	00
qui	850	200	3	21			00	-	12 6		-	_		L	20 1	1	0	~	-23	_	-
qu	850	7000	30	2			00		-		_				20 1	1	0		2	_	_
o mp	850	200						_	_	10,					_	_	_			-5-	_
dm s	850	70	-2	4-			2		7 67		10.	-4	E)		7 .		-1	-5	9-		-4
/S E/W N/S mb	9 2 850	10 01	25 -2	264	† ?	(3,	3 2	. co	10 -1	.0.	13 -5	12 -4	N, 9°E)	0 0	7 0	0	13 -1	15 -5	17 -6	-07	13 -4
S E/W N/S mb	2 9 2	1 19 0 2	1 25 -2	1 26 -4	18 -3	ON, 70E)	1 3 2		-1 10 -3	12 -5	0 13 -5	1 12 -4	tt (49°N, 9°E)		7 0 7	2 6 7	0 13 -1	0 15 -5	-1 17 -6	16 -5	2 13 -4
S E/W N/S E/W N/S mb	2 9 2 850	18 1 19 0 2	24 1 25 -2	24 1 26 -4	2 18 -4	ne (47°N, 7°E)	3 1 3 2	40	29 -1 10 -3	-2 12 -5	25 0 13 -5	15 1 12 -4	annstatt (49°N, 9°E)		7 0 7 0	12 2 9 1	15 0 13 -1	21 0 15 -5	23 -1 17 -6	1 16 -5	10 2 13 -4
S E/W N/S E/W N/S mb	058	-3 18 1 19 0	-6 24 1 25 -2	-5 24 1 26 -4	10 2 18 -4	Payerne (47°N,	2 3 1 3 2	000	-5 29 -1 10 -3	26 -2 12 -5	-3 25 0 13 -5	-2 15 1 12 -4	gart/Cannstatt (49°N, 9°E)		7 0 7 0 0	1 12 2 9 1	0 15 0 13 -1	-2 21 0 15 -5	-3 23 -1 17 -6	20 1 16 -5	-1 10 2 13 -4
//S E/W N/S E/W N/S E/W N/S mb	0 2 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	17 -3 18 1 19 0	21 -6 24 1 25 -2	20 -5 24 1 26 -4	-4 10 2 18 -4	#149 Payerne (47°N, 7°E)	4 2 3 1 3 2	000	19 -5 29 -1 10 -3	-5 26 -2 12 -5	18 -3 25 0 13 -5	14 -2 15 1 12 -4	Stuttgart/Cannstatt (49°N, 9°E)		7 0 7 0 7	11 1 12 2 9 1	14 0 15 0 13 -1	19 -2 21 0 15 -5	18 -3 23 -1 17 -6	-2 20 1 16 -5	13 -1 10 9 13 -4
/S E/W N/S E/W N/S E/W N/S mb	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-3 17 -3 18 1 19 0	-11 21 -6 24 1 25 -2	-13 20 -5 24 1 26 -4	13 -4 10 2 183 -4	Payerne (47°N,	4 4 2 3 1 3 2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-15 19 -2 10 -2 -1 10 -3	20 -5 26 -2 12 -5	-13 18 -3 25 0 13 -5	-12 14 -2 15 1 12 -4	#151 Stuttgart/Cannstatt (49°N, 9°E)		7 0 7 0 7	-2 11 12 2 9 1	-7 14 0 15 0 13 -1	-12 19 -2 21 0 15 -5	-14 18 -3 23 -1 17 -6	15 -2 20 1 16 -5	-10 13 -1 10 9 13 -4

*Speed is in knots; winds from the west and south are positive

Fatile 2. Climatic Wean Monthly Observed East-West and North-South Winds" (Cent.)

AAR		The state of the s	-		-		-									
m/m	8/8	E/W	W/S	E/W N	90/8	E/W N	9/	and	W/38	A.N. N/S	E/W	S/S	E/W	N/S	E/W	N/S
6	0	(00)	6	80	681	80	691	850	9	68	æ	68	68	8	g=	00
90	39 U	012	0		80		9 (2000	0	8	100	89	9	entil di	99	200
(C)	GE)	68	90		98		89	900	ore ore	40	88	49	69	eg eg	ordi ordi	eg.
	910	20	99		(6)		9	300	# (I)	69	98	40	ore ore	29	33	60 8
253	-10	2.8	400		*		La La	260	48) (#6)	90	(t)	80	36	100	13	20
	(B)	(E)	600		#		(E) H	150	(6) (40)	8	3.4	89	9.6	49	14	9-
33	600	38) 38)	60		69		6	3,00	60	9	83	8	க	40	3.6	4

86.540	7000	900	300	200	156	100
89	69	0	89	10° H	-4	4.0
anti-	2.4	20	888	38	33	SS 944
89	89	66	89	69	89	88
01	69)	36	3/6	22	3)1	88
6	9	89	9=	(E) W	400	600
gu	603	(6)	98 88	(Fig. 6)	90	100
89	ggi g	(E) H	67	1 1 1 H	-10	600
ę.	*	(2)	30	30	94 (5)	65
850	002	200	100	200	150	001

	0	4	0	70	100	9
į=	-	120	0	9	ņ	80
	70	20	64	60	9	10
	9	90	64	12	9	133
	-10	20	0	13	es i	15
	0-0 0-0 1	20	0	20	04	16
	-10	99	0	13	9	17

850	ęu	8	99	89	88	89	į-	64	850
002	-	8	-80	63	6	20	gradi gradi	**	700
500	10	400	23	64	# T	**	123	-4	200
300	16	95	10	64	91	*	100	80	300
200	2.0	(F)	38	0	89	20	21	-10	200
150	30	57.7	316	0	33	84	2	E-1	150
100	22	-111	14	0	94	49	14	10	100

7	10	14	22	27	24	16
623	80	10	-1	-	-	4
0	14	22	31	39	34	14
-1	7	్	7-	7	-2	-1
4	11	16	30	22	36	26
0	ణ	2-	-13	-12	6	9-
0	14	20	30	60	300	31
850	200	200	300	200	150	100

#167 North Front (36°N, 5°W)

2201221

speed is in knots; winds from the west and south are positive

Fable 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

#174 Udine/Campoformido (46°N, 13°E)

#177 Brindisi (41°N, 18°E)

T. N/S	4-	2.0	2 4	2 10	-1	2		£	4 1	2-	-7	9-	7-			-1	-2	-4	-4	4-	2	0
OCT E/W N	8	9 2	95	30	29	24		4	10	20	25	25	20			5	11	16	23	29	28	22
s/	-10	000	10	- 00	9	10	6°E)	-5	9-	0 0	-4	0	2	3)		9-	6-	-12	9-	2	6.	8
JULY E/W N	2	14	44	63	56	27	#178 Cagliari/Elmas (39°N,	10	20	45	54	47	24	#180 Qrendi (36°N, 14°E)		9	13	21	34	46	43	20
R N/S	4	in 4	0 49	9	-	9	Elmas	4.	7 0	3 6	-2	0	-	i (36°		-1	0	0	2	0	1	-
APR E/W N	7	14	46	23.0	46	34	gliari/	11:	18	39	46	42	32	Qrend		6	18	31	50	62	96	38
N/S	1	21 0	200	1 00	9 69	-2	78 Ca	2-	-10	-20	-14	61	2-	#180		٠,	4-	2-	-10	6-	- 2	9-
JAN E/W N	9	12	* 0 %	49	46	40	#1	14	77	38	42	40	34			11	16	24	38	20	48	38
qm	850	700	300	2000	150	100		850	000	300	200	150	100			850	200	500	300	200	150	100
	_	_	_	_	_										٠,			_	_		_	
													_		Г							
S/N	-	40	-16	-18	-14	-6		0	77.5	-14	-14	-12	80,			3	-2	-5	-7	-10	-7	-2-
OCT E/W N/S		-4						0 0														22 -2
S E/W	0		12	16	18	17	9°E)		4 0	16	18	18	13	12°E)		63	9	11	20	23	25	
E/W	0 0	o :	-6 15	-7 16	-2 18	3 17	(45°N, 9°E)	0	4.0	16	-10 18	-4 18	0 15	(42°N, 12°E)		0 2	-3	-10 11	-11 20	-7 23	1 25	22
/S E/W N/S E/W	0 0 0	-4-	20 -6 15	39 -7 16	382 18	22 3 17	inate (45°N, 9°E)	1 0 0	200	-10 16	43 -10 18	38 -4 18	19 0 15	nicino (42°N, 12°E)		8 0 2	-3	27 -10 11	41 -11 20	55 -7 23	50 11 25	26 4 22
E/W N/S E/W	0 0 0 9-	10 -4 2	-9 99 -6 15	39 -7 16	-22 - 23 - 23 - 23 - 23 - 23 - 23 - 23	0 22 3 17	/Linate (45°N,	1 0 0	2 00 -3	-8 32 -10 16	-7 43 -10 18	-388 -4 18	-2 19 0 15	a/Flumicino (42°N, 12°E)		4 8 0 2	1 13 -3 6	-1 27 -10 11	-3 41 -11 20	-2 55 -7 23	-1 50 1 25	26 4 22
S E/W N/S E/W N/S E/W	0 0 0 0 0	2 - 4	28 - 29 20 - 31	31 -4 39 -7 16	288 -2 388 -2 188	23 0 22 3 17	/Linate (45°N,	-1 1 0 0 0	10 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3	27 -8 32 -10 16	30 -7 43 -10 18	25 -4 18	18 ~2 19 0 15	=		4 4 8 0 2	12 1 13 -3 6	24 -1 27 -10 11	38 -3 41 -11 20	45 -2 55 -7 23	40 -1 50 1 25	32 1 26 4 22
APR JULY OC	0 0 0 0 0	0 - 4-	17 98 - 90 90 - 15	-16 31 -4 39 -7 16	-16 28 -2 38 -2 18	-14 23 0 22 3 17	#175 Milano/Linate (45°N, 9°E)	-2 0 -1 1 0 0	12 2 20 -3	27 -8 32 -10 16	-24 30 -7 43 -10 18	-20 25 -5 38 -4 18	-16 18 -2 19 0 15	#176 Roma/Flumicino (42°N, 12°E)		1 4 4 8 0 2	-5 12 1 13 -3 6	-11 24 -1 27 -10 11	-20 38 -3 41 -11 20	-20 45 -2 55 -7 23	-18 40 -1 50 1 25	1 26 4 22
S E/W N/S E/W N/S E/W	0 0 4 -6 0 0	2 - 4	29 -17 98 -9 90 -15 15	25 -16 31 -4 39 -7 16	29 -16 28 -2 38 -2 18	28 -14 23 0 22 3 17	175 Milano/Linate (45°N,	-2 0 -1 1 0 0	14 -12 16 -3 20 6 10	22 -23 27 -8 32 -10 16	29 -24 30 -7 43 -10 18	32 -20 25 -5 38 -4 18	27 -16 18 -2 19 0 15	176 Roma/Fiu		3 1 4 4 8 0 2	9 -5 12 1 13 -3 6	17 -11 24 -1 27 -10 11	26 -20 38 -3 41 -11 20	34 -20 45 -2 55 -7 23	37 -18 40 -1 50 1 25	-15 32 1 26 4 22

Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

S												-			
OCT W N/S	-3	2.5	200	4				9	4 · v			-2	٥.	0 00	0
E/W	-2	13	31	28		-2	10	29	32			8	11	50	90
S/N	6.5	27 82	29	19	E)	9-	200	28	24	1000	2 E)	1	20 0	n m	
JULY E/W N	2- 80	138	44	28	#191 Ankara (40 ⁰ N, 33 ⁰ E)	φ _ω	16	59	31	0,00	0 'N' 0	9	ω -	1.5	1.4
R N/S	20.03	ω ω	9 80	9	a (40°	m m	40	0		10,10	15K (0)	0	-1-	7 77	-4
APR E/W N	9 10	14	30	27	Ankar	3	15	30	30	NOO 31.	nrma	5	202	21	00
/8	-		0 %	-	#191	m m				601	N car			-11	
JAN E/W N	6-3	12	33	38		0 0	16	42	37			10	10	21	00
	-	00	200	100		150	200	000	150			850	200	300	9
qm	850	200	- 12			814								2 57	000
		_		_						1	1		_		
CT N/S	1 850	_		4-			ep 4		-5				25.		
OCT E/W N/S	1 -1 -1	8 -3	15 -8	14 -4		5 -1 -1 -1	11 -3	148	15 -7 16 -5	VII o	E)	-23	000	12 -6	0
/S E/W N/S	1 -1 -1	8 -3	8 9	14 -4	^о Е)		11 -3	148		V 96 ⁰ E1	N, 20 E/	27.0	000	12 -6	0
/S E/W N/S	-4 -5 4 -1	-5 8 -3	15 -8	3 14 -4	N, 21°E)	-3 3 -1	-4 8 -3	-2 14 -8	15 -7 16 -5	(44°N 96°EN	a (11 N, 20 E)	-3 2 -2	0 8 4	12 -6	0 14
/s E/W N/S E/W N/S	0 -4 2 -5 4 -1	10 -5 8 -3	-4 14 -8 0 15 -6	13 3 14 -4	ad (45°N, 21°E)	-3 3 -1	10 -4 8 -3	24 -2 14 -8	25 3 15 -7 16 2 16 -5	Manager MAON 920 EV	ancasa (11 IV, 20 E)	1, 3	2 - 4 3	12 16	0 11 0
JULY OCT E/W N/S E/W N/S	-1 0 -4 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 16 -6 11 -7	23 -4 14 -8	6 0 13 3 14 -4	Beograd (45°N, 21°E)	6 -4 5 -1	3 10 -4 8 -3	0 24 -2 14 -8	1 16 2 16 -5	Wolfer	u/Dancasa (44 IV,	1, 3	24 0 4- 0	2 15 -4 12 -6	0 11 0 0
//S E/W N/S E/W N/S E/W N/S	6 -1 0 -4 2 1	11 2 10 -5 8 -3 17 0 16 -6 11 -7	1 -1 23 -4 14 -8 0 0 22 0 15 -6	16 0 13 3 14 -4	#182 Beograd (45°N, 21°E)	2 3 -3 3 1	20 2 15 -4 8 -3	23 0 24 -2 14 -8	121 0 25 3 15 -7 18 1 16 2 16 -5	Wolfer	u/Dancasa (44 IV,	1, 3	10 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	16 2 15 -4 12 -6	0 14 0
S E/W N/S E/W N/S E/W N/S	-2 3 -1 0 -4 2 1 -2 -5 4 -1	-4 11 2 10 -5 8 -3 -9 17 0 16 -6 11 -7	21 -1 23 -4 14 -8 20 0 22 0 15 -6	-10 16 0 13 3 14 -4	#182 Beograd (45°N, 21°E)	8 4 2 3 3 -3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 12 3 10 -4 8 -3	-7 23 0 24 -2 14 -8	-7 21 0 25 3 15 -7 -7 18 1 16 2 16 -5	# 126 Browness if Dames at MAON 200 DA	too pacateou/Daneasa (11 iv.	1 -3 2 -2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 16 2 15 -4 12 -6	10 00 11

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

	S/N	-10 -10 -10 -7-		-12 -13 -12 -8 -6		7777777
	OCT E/W	12 16 23 31 30 26 22		9 17 20 20 21 21		111 16 22 28 28 28 28 28
3°E)	JULY W N/S	2-00-1844	6	1001800	(E)	1-0244E
ON, 38	JU E/W	4 9 10 10 10 10 10 10 10 10 10 10 10 10 10	, 30°E	2 5 6 14 11 11	N, 46	4 10 10 22 14 17
9g) wo	N/S	400-440	(50°N,	40968	Saratov (52 ^o N, 46 ^o E)	204450c
#200 Moscow (56°N, 38°E)	APR E/W N	6 11 12 22 22 21 18	#203 Kyev (50 ⁰ N, 30 ⁰ E)	3 8 13 16 16 17	Sarate	3 113 20 22 19
#200	N/S	0 7 4 8 8 9 01 -	# 203	0015549	#204	1007799
	JAN E/W N	7 10 14 18 20 20 21 25		44 112 113 118 20 21		5 113 16 22 22 22
	qm	850 700 300 300 200 150 100		850 700 500 300 200 150 100		850 700 300 300 150 100
	S/N/S	177 9 1 1 1 1 9 8 1 1 1 1 1 1 1 1 1 1 1 1 1		£ 6 8 9 9 8 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1		1124999
		13 -1 17 -4 17 -4 32 -11 31 -13 27 -11 22 -8		10 -3 14 -6 18 -8 23 -9 24 -9 20 -10		112 115 119 124 125 127 16 16 17 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19
(_O E)	/S E/W N/		(a,	1	(3)	
ON, 30°E)	/S E/W N/	13 17 21 32 32 31 27	N, 40°E)	10 14 18 23 24 23 20	V, 49 ^o E)	12 15 19 24 23 22 22
ad (60°N, 30°E)	/S E/W N/S E/W N/	1 13 2 21 3 32 3 31 3 27 3 27	ia (59°N, 40°E)	-1 10 -1 14 -5 18 2 23 2 24 2 24 2 23	1 (56 ^o N, 49 ^o E)	-2 -2 -1 -1 0 0 24 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 0 23 0 0 0 0
eningrad (60°N, 30°E)	/S E/W N/S E/W N/	4 1 13 6 1 17 10 2 21 16 3 32 14 3 31 11 3 27 5 3 22	Vologda (59 ^o N, 40 ^o E)	2 -1 10 6 -1 14 17 -5 18 14 2 23 14 2 24 13 2 24 13 2 23	Kazan (56 ⁰ N, 49 ⁰ E)	4 -2 12 8 -2 15 11 -1 19 15 0 24 17 0 23 17 0 22
195 Leningrad (60°N, 30°E)	I/S E/W N/S E/W N/S E/W N/S	4 4 1 13 5 6 1 17 7 10 2 21 10 16 3 32 6 14 3 31 3 11 3 27 0 5 3 22	#198 Vologda (59°N, 40°E)	3 2 -1 10 3 17 -5 18 5 14 2 23 1 14 2 24 1 13 2 23 0 7 2 20 -	#199 Kazan (56 ⁰ N, 49 ⁰ E)	3 4 -2 12 2 11 -1 19 4 15 0 24 2 18 0 23 1 17 0 22 0 12 0 22
#195 Leningrad (60°N, 30°E)	S E/W N/S E/W N/S E/W N/S	7 4 4 1 13 11 5 6 1 17 18 7 10 2 21 28 10 16 3 32 25 6 14 3 31 19 3 11 3 27 16 0 5 3 22	#198 Vologda (59°N, 40°E)	7 3 2 -1 10 11 2 6 -1 14 17 3 17 -5 18 23 5 14 2 23 23 1 14 2 24 21 1 13 2 23 22 0 7 2 20 -	#199 Kazan (56 ⁰ N, 49 ⁰ E)	8 3 4 -2 12 18 2 11 -1 19 25 4 15 0 24 25 2 18 0 23 23 1 17 0 22 22 0 12 0 22
#195 Leningrad (60°N, 30°E)	JAN APR JULY OCT OCT E/W N/S E/W N/	-2 11 5 6 1 17 -5 18 7 10 2 21 -8 28 10 16 3 32 -10 25 6 14 3 31 -10 19 3 11 3 27 -11 16 0 5 3 22	#198 Vologda (59 ^o N, 40 ^o E)	-1 7 3 2 -1 10 -4 11 2 6 -1 14 -8 17 3 17 -5 18 -10 23 5 14 2 23 -12 23 1 14 2 24 -13 21 1 13 2 24 -13 22 0 7 2 20 -	#199 Kazan (56 ^o N, 49 ^o E)	-2 8 3 4 -2 12 -3 12 3 8 -2 15 -5 18 2 11 -1 19 -8 25 4 15 0 24 -10 25 2 18 0 23 -10 23 1 17 0 22 -7 22 0 12 0 22

^{*}Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

																			_				
T/N/S	20	? -	7 0		0	2		-2	2	33	9	2	6	9			-1		-	-	-	2	2
E/W N	4.5	101-	27-	9-	-5	6-		-10	-14	-5	12	18	22	6			8-	-17	-10	-12	110	-1	9-
LY N/S	10.4	4 0	10	2 4	7	0	(M ₀ 8	-	-2	-1	7	4	9	2	1/1		0	-	7	0	33	0	-
JULY E/W N		4 0	0 4	-30	-33	-27	30N, 1	2-	-19	-20	-12	-18	-21	-24	N 401		2	7	ç	-10	-14	-10	-10
R N/S	21 11	2 0	2 0	2 21	-2-	e-	off (1:	-4	4	4	2	12	13	80	on (50	21	-	7	0	_	2	4	5
APR E/W N	0 -	# u	-	4	3	0	#220 Dakar-Yoff (15°N, 18°W)	6,	1-	10	3.2	37	34	18	#999 Abidian (50N 40W)	faring.	9-	121	+12	ر ا	-4	-0.	-7
JAN N N/S	9-	1 6	30	1 00	c	-1	220 D	-3	-	9	12	4	9	c	66#	1	-5	-2	0	c	2	12	10
J/E/W	5-	+ +	+ 3	0	6	63	*	9-	-1	12	36	48	41	19			12	-15	-10	11	24	23	65
qm	850	000	300	200	150	100		850	200	200	300	200	150	100			850	002	500	300	200	150	100
OCT E/W N/S	6 -2									0 4												5 3	
S/N	-14	21	11	21	24	19	(3 ₀ ,	-2	-3	7	0	7	6	6	OE)	i	4	-2	2	0	5	6	9
JULY E/W N	ιn α	14	3.4	32	27	10	Sudan (20°N, 37°E)	80	9	9-	-20	-26	-40	-46	217 Khartonm (16°N 33°E)	. , , ,	9	-4	1-7	-13	-24	-32	-32
APR W N/S	2.5	2 6	1 07	4-	-4	-2	dan (20	0	2	-1	-10	-12	-7	7	um (16		-8	-4	-3	-7	-10	-4	-1
E/W	91	1 00	200	83	80	49		-5	7	20	42	51	47	24	Charto		-2	4	2	24	30	30	10
JAN W N/S	-5	3 07	1	- 22	0	0	#216 Port	2	3	3	1	0	9	2	#217 1		-10	0	1	-	10	4	2
JA E/W	14	3 2 2	0 0	78	74	55		0	14	30	09	29	09	32			-1	6	14	36	44	40	22
0		3.0		0	0	0		00	00	200	00	00	00	00			00	00	00	0	00	00	00
qm	850	000	300	200	15	10		00	7	ũ	3	5	-	-			00	70	50	36	20	150	1(

 $\ensuremath{^{\#}}$ Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

															_		_				
	T N/S	07	2 -	8 6	8-			-	0	7.0	2 2	0	1		2	0	-	-5	-1	??	-1
	E/W N	9	16 21	22	20			9	9 ;	11	16	14	14		12	14	17	24	23	19	15
(_O E)	S/N	က္လု	. O	-10	0	c	33°E)	<u>ب</u>	-2	4 0	9-	-5	-5	E)	0	1	3	1-	8	57	-
ON, 51	JULY E/W N	89	14	116	7		N,	0	41	1.0	10	7	2	100°E)	-	2	3	6	0	က	-
ar (62'	R N/S			2 4	9-		ısk (68	1	010	20 <	t m	4	7	Tura (64°N,	-	-3	-7	-5	-4	-5	9-
#253 Syktyvkar (62 ⁰ N, 51 ⁰ E)	APR E/W N	15	28	26 24	22		#256 Verkholansk (68°N, 133°E)	12	4.	D C	2 00	9	7	Tura	00	13	16	18	20	17	17
£253 S	N/S	5.4°	င္ ထု	-10	-10		56 Ver	1	2.	40	10	12	18	#257		12					
*	JAN E/W N	100	17	21	24		# 23	0	7.	7.0	0 01	00	6		00	6	11	11	14	13	15
	qm	850	300	200	100			850	200	300	200	150	100		850	200	200	300	200	150	100
									_				_		_						_
	T N/S	4 %	10	7	6			[-	د. د	9 0	-10	-10	-11		9	8	3	53	2	5	2
	OCT E/W N/S	-6 -4 -11 -2						1			21 -10					7 3					
^о Е)	/S E/W			1-6	6-		(a,E)	7	10	100		21	19	(E)	4		10	11	11	10	11
ON, 15°E)	JULY OC	-6 -11	77 79	3 -1 -1 9 -1	2 9		N, 53 E)	-2 7	2 10	9 1 10	21	1 21	2 19	ON, 88 ^O E)	5 4	7	8 10	10 11	11 11	12 10	6 11
ny (12°N, 15°E)	/s E/W N/S E/W	-1 -4 -11	-11 -3 -8	-22 -1 -1 -26 3 9	-30 2 -9	o	lar (68°N, 53°E)	4 -2 7	6 2 10	13 0 16	9 2 21	6 1 21	2 2 19	sk (66°N, 88°E)	2 5 4	5 7	8 8 10	10 10 11	8 11 11	3 12 10	4 6 11
rt-Lamy (12°N, 15°E)	$ \begin{array}{c c} \mathbf{APR} & \mathbf{JULY} & \mathbf{OC} \\ /\mathbf{W} & \mathbf{N/S} & \mathbf{E/W} & \mathbf{N/S} & \mathbf{E/W} \\ \end{array} $	-5 0 -1 -6 -11 -10 -4 -11	-2 -14 -1 -3	4 -22 -1 -1	4 -30 2 -9	c	-Mar (68 N,	-3 4 -2 7	-3 6 2 10	13 9 10	-10 9 2 21	-11 6 1 21	-12 2 2 19	rukhansk (66°N, 88°E)	0 2 5 4	-2 6 5 7	-2 8 8 10	-5 10 10 11	-4 8 11 11	-4 3 12 10	-4 4 6 11
26 Fort-Lamy (12°N, 15°E)	$4/S \begin{array}{ c c c c c c c c c c c c c c c c c c c$	-10 -4 -11	6 -2 -14 -1 -3	13 4 -22 -1 -1 12 4 -26 3 9	3 4 -30 2 -9	c	-Mar (68 N,	-3 4 -2 7	10 -3 6 2 10	18 -6 g 0 10	24 -10 9 2 21	20 -11 6 1 21	18 -12 2 2 19	52 Turukhansk (66°N, 88°E)	0 2 5 4	9 -2 6 5 7	-2 8 8 10	16 -5 10 10 11	17 -4 8 11 11	15 -4 3 12 10	14 -4 4 6 11
#226 Fort-Lamy (12°N, 15°E)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	-6 -6 -5 -5 -6 -11 -6 -11 -6 -11	4 6 -2 -14 -1 -3 -8	13 4 -22 -1 -1 12 4 -26 3 9	7 3 4 -30 2 -9	c	#250 Naryan-Mar (68'N, 53'E)	-5 6 -3 4 -2 7	-8 10 -3 6 2 10	-12 18 -6 9 0 16 -14 96 -8 13 9 10	-10 9 2 21	-17 20 -11 6 1 21	-18 18 -12 2 2 19	#252 Turukhansk (66°N, 88°E)	1 7 0 2 5 4	9 -2 6 5 7	-5 14 -2 8 8 10	-8 16 -5 10 10 11	-7 17 -4 8 11 11	-5 15 -4 3 12 10	-4 14 -4 4 6 11
#226 Fort-Lamy (12°N, 15°E)	$\begin{array}{c cccc} AN & APR & JULY & OC \\ \hline N/S & E/W & N/S & E/W & N/S & E/W \\ \end{array}$	-6 -6 -5 -5 -6 -11 -6 -11 -6 -11	24 4 6 -2 -14 -1 -3	22 14 13 4 -22 -1 -1 22 13 12 4 -26 3 9	13 7 3 4 -30 2 -9	c	250 Naryan-Mar (68'N,	7 -5 6 -3 4 -2 7	9 -8 10 -3 6 2 10	13 -12 18 -6 9 0 16 15 -14 96 -9 13 9 10	-16 24 -10 9 2 21	18 -17 20 -11 6 1 21	20 -18 18 -12 2 2 19	#252 Turukhansk (66°N, 88°E)	5 1 7 0 2 5 4	-1 9 -2 6 5 7	12 -5 14 -2 8 8 10	13 -8 16 -5 10 10 11	-7 17 -4 8 11 11	15 -5 15 -4 3 12 10	18 -4 14 -4 4 6 11

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

S/N	0000	2	1551		80000000
OCT E/W N	13 19 25 31 32 27	28	14 20 23 229 28 28		114 118 124 330 330 27
S	222125	-3 E) -3	4 8 8 8 4 5 8	83°E)	1220100
JULY E/W N/	3 8 11 13 12	7 N, 64	4 10 13 18 20 20 18		გი ⊢ თ თ თ 4
R N/S	0 4 7 8 8 7	-7 ay (53	-000	ev (58	2 2 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2
E/W N/	15 15 15 35 36 34	-6 31 -7 7 -3 #264 Kustanay (53°N, 64°E)	6 111 17 26 229 24 28	265 Kolpashev (58 ⁰ N,	12 16 16 32 33 30 30
JAN V N/S	201484	-e #264	0 0 2 5 5 4 4	#265 K	205566
JA E/W	12 16 21 27 30 31	45	8 112 16 22 25 25 28 31		11 18 18 22 24 28 28
qm	850 700 500 300 200	100	850 700 500 300 200 150 100		850 700 500 300 200 150
OCT N N/S	2 2 2 2 4	77	4-124695		122211
E/W	13 13 18 18 17		4 4 7 113 115 117		114 16 20 27 27 26
LY N/S	007979	1 5 2 -4 Schmidt (69 ^O N, 179 ^O W)	0110110	61°E)	2770777
JULY E/W N	0 4 2 2 2 8	2 9°N,	3 6 6 1 1		4 9 8 11 11 11 11 11 11 11 11 11 11 11 11 1
APR W N/S	00-005	5 midt (6	4-0-12881	Sverdlovsk (57°N,	110011
E/W	4 6 10 13 12		048661	verdlo	10 15 21 29 28 28
JAN W N/S	444000	9 1 #259 MYS	10 10 11 11	#262 S	444666
. 4	v 4 a a a u a		41-40118		112 118 118 224 226
E/W	0.400000				

 $\ensuremath{^{\#}}$ Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

									_				
T N/S	2 2 2	1124		2	9 5	4-	e		0	1 87	0	4	9 9
E/W N	2 6 11	16 18 20 20	E	6 11	18	28	29		9	20	31	35	30
S/N	252	4 9 9 9	128°	0.03	1000	4	-1 5	135°E)	- 0	-1	-2	-5	9 - 1
N APR JULY N/S E/W N/S	2 - 4	3 110	(50°N,	2 4	10	25	12		3	r 03	22	30	37
R N/S	30.6	6 8 8 10	hensk	4 00	10 4	- 5	-1-3	vsk (49	1	-2	-2	0	40
APR E/W N	2709	112 112 113	veshc	101	188	31	31	abaro	6	22	32	37	30
N/S	400	3 13 18	#271 Blagoveshchensk (50 ⁰ N, 128 ⁰ E)	-10	-12	. 4	4-1	#272 Khabarovsk (49 ⁰ N,	4-	0	-7	-3	0 8
JAN E/W N	101	3 10 14	#27	rc 6	15	25	32	#	11	15	25	29	325
qm	850 700 500	300 200 150 100		850	2000	200	150		350	500	300	200	150
OCT W N/S	4.00	4881		0 %	9 9	- 1	9-4-		ري د	-11	-10	-11	o 10
E/W	13 16 18	28 27 25 24		13	21	23	24		9	18	27	53	27
LY N/S	0 11 4	10 9 7	(GE)	. 2	000	4	4	E)	7-	17	7	2	
JULY E/W N	- 00	2222	N, 108	4-	1	000	9 4	, 113°E)	0-	4 44	10	15	15
APR W N/S	0 2 9 -	-10 -9 -8	nsk (58 ⁰ N, 108 ⁰ E)	1-4-	. 8- :	8-	-19	ta (52°N,	9-	-13	-15	-13	-11
AN APR JULY S E/W N/S	14 20 26	33 31 27 24	Kirens	8 -	14	18	20	#268 Chita		20	29	29	31
JAN W N/S	000	-8 -6 -5	#267 Kire	0 9	-15	-11	6-9-	#268		-16	-20	-14	-12
14	0 x 4	22 28 32 32		13	180	50	22		6-	9	2	9	30
E/W	10	20101010									64	S	64 65

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

T N/S	2	2	-5	9-	-3		-2	7 0	00	0 0	2 %		2	-	4	12	18	16
E/W N	8	13	33	42	34	14°E)	-10	7.0	12	18	14		13	18	29	48	09	52
S/N N/S	-2	70	-7	-7	- 5	o, n	9	- 0		9-	-13	2°E)	2	-2	-4	-10	-12	-12
JULY E/W N/	67	9 9	40	51	30	ark (22	-2	7.	-10	-16	-34	N, 14	9	10	18	30	42	35
N/S	0	- 6	14	6	r-4	282 Hong Kong/King's Park (22°N, 114°E)	9	4 11	0 10		00	284 Wakkanai (45°N, 142°E)	0	-2	-2	0	63	en •
APR E/W N	2	100	30	37	30	ong/Ki	8:	2.4	42	52	22	Vakkar	112	18	32	52	57	20
JAN N N/S	4	00	63	7	-30	long Ke	20	7 0	2 00	17	2	# 284	-5	4-	4-	7	en	9 4
E/W	2	24	36	42	38	282 H	200	200	65	68	40		10	18	29	47	20	51
qu	850	200	300	200	150		850	200	300	200	100		850	700	200	300	200	150
OCT W N/S	89	- 60	7	-3	40			-		2.4	7		0	3	4	7	-3	9
E/W	12	20	30	30	26		6	13	29	323	27		0	60	21	31	37	3 30
	C) c	7 7	-2	- 5	0 -5	(a)	-2	00	-	010	0	17°E)	0	-	en	8	24	C4 C
LY N/S	1						1						1			10	_	0 11
E/W N/S		- 11	16	25	17	N, 52°E)	2 00	- 01	31	5.4	29	o N	1.	12	19	3	in	ND C
/S E/W N	50	_		_	0 17	rv (47°N, 52	-	_	-	5 54	-	Ata (43°N,	-	-	-	-	-	N C
/S E/W N	4	4. 10	1	01		Guryev (47°N,	000	200	14	_	0.01	Alma-Ata (43°N,	0	61	0	2	64	-
I/S E/W N/S E/W N	4.	4. 10	20 1	22 2	0 0	ryev (47°N,	000	2 6	19 4	40 4	18 2	#279 Alma-Ata (43°N,	3 0	7 2	22 0	36 3	40 2	? 0
/S E/W N/S E/W N	1 3 4	0 12 4	-4 20 1	-7 22 2	22 1 21 0	Guryev (47°N,	0 0	10	19 4	20 5	-3 18 2	279 Alm	1 3 0	2 4	5 22 0	7 36 3	-2 40 2	388

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

OCT W N/S	-2002	14 14 14		01 01 0	212	12.7		0	00	10	22
E/W	11 13 69	22 12 12 12 12 12 12 12 12 12 12 12 12 1		2 C C	00 00	53		89	91	39	833
LY N/S	40-10	117	(3 _o	t- 40 -	- 01 0	-12	E)	7	0	7 17	-13
S/W N/	8 1 1 1 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	36.2	(, 137°E)	12	4 68 63 4 68 63 4 68 63	23	, 140	01	12	12 07	200
N/S	-0810	40101	(370)	n o .	7	and and	(36)	00	gred o	- 10	79
APR E/W N	44088	727	Wajima (37°N,	12 20	9 6 6 8	2 4	290 Tateno (36°N, 140°E)	9	00 :	÷ [-	98
N/S	4000	00 00 W	* 289	100	2 01 00	5	* 250		23	30	6
JAN E/W N	8 0 0 0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1258		9 9 9	101	74		14	27	103	122
qu	850 700 300 300	150		700	300	100		850	200	300	200
/W N/S	0-107	207		→ 50 E	24.0	13		01	201	30 c	100
E/W	23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8 9 4 8 8 8 8		118	182	48		12.0	2	10 10	61 00
JULY W N/S	~ 7 7 9	9779	(E)		7 7 7	79	<u> </u>	9	61 -	7 10	217
E/W	3102 34	2 C 22	(43°N, 146°E)	9 11 8	2 4 5 4 5 4 5 5	36	140°E)	10	91	N 17	20
PR N/S	0000	000	o (43°	700	9 10 19	₩ 10	(40°N,	9	pri i	- 25	*
E/W	1223	500.4	Nemuro	111	99	43	Akita	19	98	52	62
N/S	10100	420	4 286	99-	- 10 0	w 50	4 282		0	79 50	1-
	2222	222		22 22 23	223	200		20	333	808	386
JAN E/W N/S											

Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

T N/S	-2-	101	0	01	-		70	9 80	t- 1		-		9-	-	623	4	4
E/W N	8 4	36	99	24	48		-:	22.4	09	69	39		-2	ø,	26	45	51
JULY W N/S	80 43	64	me (7 00	6-	131°E)	9 4	0 01	0	40	6-	E)	90	un.	m	0	10
E/W	20 00	100	60	18	***		9 9	11	11	9 6	9-	(, 130°E)	63	673	02	0	ņ
N/S	40	-	eq:	4 01	0	ma (3)	o -	- 01	100		0	(29°N	80	623	*	49	01
E/W N/	9 80	000	99	13 CH	60	295 Kagoshima (32°N,	100	9 80	20	79	2 22	296 Naze (29°N,	13	20	34	96	7.1
JAN W N/S	9-1-	- 27	E= :	10	80	# 295 K	En il	0	0	13	- 1	# 29	80	-2	nge.	11	16
3/ E/W	112	88	110	132	98		40	4 54 5	911	986	9 80		10	50	63	112	123
qu	850	200	300	2002	00		000	000	300	200	00		850	200	200	300	200
							30 8						_				_
E/W N/S	12 30	11	62	9 9	10		0.	* 07	80 1	* 2	200		-	13	6	16	171
S E/W N/S		35 11	266	69 16	11 41 10	CH	0.	98	6.9	20 C	0.00	36°E)	0 -1	04	98	65 16	171 17
E/W N/S	24	0 35 11	100	-12 69 16	-11 41 10	f, 133°E)	0.	1 00 00 00 00 00 00 00 00 00 00 00 00 00	69	7 6 6	-9 51 9	3°N, 136°E)	3 0 -1	20 ES ES	5 1 36 9	-2 65 16	8 -7 77 17
N/S E/W N/S E/W N/S	68	14 0 35 11	13 -5 56 23	14 -15 69 16	-1 -11 41 10	o (35°N, 133°E)	9 .	1 00 00 00 00 00 00 00 00 00 00 00 00 00	25 0 69 13	30 -4 833 14	300	(33°N,	7 3 0 -1	20 ES ES	13 1 36 9	18 -2 65 16	18 -7 77 17
JULY OCT E/W N/S E/W N/S	11 5 2	2 14 0 35 11	3 13 -3 56 22	1 14 -15 69 16	2 -1 -11 41 10	0	10 8 8	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3 25 0 69 13	20 20 -4 833 14	6 -0 01	isaki (33°N,	1 3 0 -1	12 3 15 2	6 15 1 36 9	4 18 -2 65 16	3 18 -7 77 17
//S E/W N/S E/W N/S E/W N/S	10 2 11 5 2	40 2 14 0 35 11	65 56 22	1 14 -15 69 16	53 2 -1 -11 41 10		80 01 00 00 00 00 00 00 00 00 00 00 00 00	40 00 188 20 20 20 20 20 20 20 20 20 20 20 20 20	3 25 0 69 13	28 20 20 -4 833 14 14 14 14 14 14 14 14 14 14 14 14 14	56 0 6 51 51 51 51 51 51 51 51 51 51 51 51 51	isaki (33°N,	8 1 7 3 0 -1	1 12 3 15 2	32 6 13 1 36 9	68 4 18 -2 65 16	83 3 18 -7 77 17
(S E/W N/S E/W N/S E/W N/S	10 2 11 5 2	2 40 2 14 0 35 11	11 65 5 15 -5 56 22	12 81 2 16 -12 69 16 12 77 1 14 -15 63 16	8 53 2 -1 -11 41 10	0	80 01 00 00 00 00 00 00 00 00 00 00 00 00	40 0 18 20 20 20 20 20 20 20 20 20 20 20 20 20	4 69 3 25 0 69 13	2 30 14 15 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(33°N,	.3 6 1 7 3 0 -1	20 1 12 3 15 2	0 32 6 15 1 36 9	9 68 4 18 -2 65 16	12 83 3 18 -7 77 17

"Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

١			E. W	S/N	E/W	8/N	E/W	N/S	QIII.	3	W W	S/N	E/W N/	S/N	E/W	M N/S	E/W N	S/N
6	85		9	61	123	65	85	81	80	-	6	7	10	1-	9	-16	6.2	9-
0	117		11	4	35	-	-	-	70	-	616	-	30	end	073	9-	01	7
0	de		20	4	26	-#	19	ග	20		0	-	30	46		0	10	1
6	NO.	-	(5)	4	55	13	400	1.7	30	_	0.0	21	53	9	-12	-2	31	2
100	33	-	46	4	43	24	46	21	20		53	0	23	2	-17	64	41	6
(w	30		44	60	41	255	458	30	15	-	2.	0	99	4	-24	99	80	10
4.1	10		36	9	26	20	36	14	100	_	64	01	40	32	-36	65	20	9
200	00 1	Beyre	outh/h	Chaldel	b (34°	#300 Beyrouth/Khaldeh (34°N, 35°E)	(3)				309 N	ew D	New Delhi/Safdarjung (29°N, 77°E)	afdarj	ang (2)	ON, 7	10E)	
158	1 9	+	9	15	-4	-	85	4	100	1	80	4-4	10	5.	27	7	9	100
85	49	_	100	4	10	0	0	100	700	-	4	0	10	-4	00	7	0	2
2.5	- 49		200	P 05	18	9 80	20	- t	200	_	P 200		1 (S)	7	4 ~	77	12	0 10
61	85		3.2	01	30	57	40	10	30	-	2.	-	44	07	0	2	46	0
-	47	-	99	65	100	80	20	16	200	and the last	25	ø	39	-	00	4	52	00
0)	4		36	0	233	10	46	91	150		100	10	54	0	9-	113	20	20
63	89		33	89	6)	122	31	12	10	-	99	49	30	end	-18	07	27	es
		202 Mg	afeata	Seate An 1330N	Nox	3.6°E)						3 66 5	Chiana Mai Ho	Mai (1		1.3000		
	5	9	to read	es des	*	777					i.	000	Summer	A1411 13		1. 00		
55	9	H	8	-	13	17	10	64	85	-	04	4	9	-	80	-	5-	67
95	4		1.1	89	12	04	10	10	20	_	01	0	1-	-	11	-	9-	53
-	873		25	69	16	10	62	111	20	_	9.	-2	13	-		2	-5	893
19	WD.	_	52	2	60	13	42	1.1	300	_	2.5	9	100	24	-16	7	-1	643
-4	9		89	-	23	17	36	52	20	_	0	13	41	-1	50.	80	0	-
63	10	_	655	+	20	21	20	20	15	_	4	14	25	27	200	-10	10	47
*	4	_	49	84	Į.	80	43	17	10	_	80	9	16	0	-39	-12	-12	60

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

OCT /W N/S	80			-5-		-							0 2					0 1			
E/	40	1	-12	-28	-12	7ºE		100	7	7	7	10	-27	-	0	101	1	_	-	23	2
LY N/S	90	1	5.	-12	-3	01 N		0	0	23	4	90	-13		159°W	-5	0	1	23	2	9
JULY E/W N/	99	9-	-17	-40	-13	ut (11		14	10	-	-	47.0	-42		2°N,	-15	-10	-	21	36	34
R N/S	7-	7	eo •	4 51	4	dN-no		0	-52	-	-	- 0	00		Kauai (22°N, 159°W)	-3	0	7	7	7	*3
APR E/W N	0 0	100	6-	φ φ	8-	Tan-S		-8	90	-5	21	- 0	9			10	200	10	32	57	500
N/S	907	0	4	20 W	-	#329 Saison/Tan-Son-Nhut (110N, 1070E)		4-	-	7	00 1	12	0 10		#351 Lihue,	0	1	7	8.	-12	-11
JAN E/W N	010	2	7	-23	20	4329		1-	80	9-		71	- 6			17	9	20	44	57	21
qu	850	-	-	Name and Address	_			850	200	200	300	200	100			850	200	200	300	200	150
T/N/S	21 -	-	0	0 -	1 00			-2	0	-	0	0 0	2			-2	-2	-	0	-2	-2
T/N	2.1	. –	0	0 -	מס י			-2	0	_	0	0 0	? -			-2	-2	-	0	-2	- 2
0				-				00	5	6	12	45	-26	-		20	0	9-	-	-21	-
E/W	φ «							-	-	-	de la	-	_	4		-	_	_		_	
N/S E/W			-2 -12		-9 -22	(a ₀)		-	- 23	-	de la	-	217	1	(E)	23	_	*		0	5-
/S E/W			53		-6	N 1000E)	***	e5-	-	0	7	90	_		V, 101°E)	1	-2	_	107	-32 -9	
S E/W N/S E/W		1	-1112	-238	-529	(140N 1000E)	W (12 12	13 -3	12 -2	4 0	7	-20	-12		la (7°N, 101°E)	14	13 -2	*	-155	-32	-44
E/W N/S E/W	- 111	3 1	1 -11 -2	-238	1 -52 -9	Sanakok (14°N 100°E)	Cangnon (11 11 100 11)	3 13 -3	1 12 -2	1 4 0	-8	200	-52 -11		Sonkhla (7°N, 101°E)	1 14	1 13 -2	2 4	2 -15 -5	5 -32	2 -44
I/S E/W N/S E/W N/S E/W	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 1 1	13 1 -11 -2	2 -23 -8	1 1 -52 -9	1325 Banakak (14 ⁰ N 100 ⁰ F)	and to an in the state of the s	0 3 13 -3	-4 1 12 -2	3 1 4 0	2 -8 -7	123	4 -1 1 -52 -11		326 Sonkhla (7°N, 101°E)	-8 1 14	-8 1 13 -2	1 2 4	-5 2 -15 -5	0 5 -32	-2 2 -44
/S E/W N/S E/W N/S E/W	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 7 3 1 1	5 13 1 -11 -2	19 2 -23 -8	5 1 1 -52 -9	4325 Banakok (14 ⁰ N 100 ⁰ E)	TOTAL TOTAL BURNEY TO THE TANK THE TEND THE TEND THE TEND THE TENK	1 0 3 13 -3	0 -4 1 12 -2	-1 3 1 4 0	2 -8	12 4 -25	4 -1 1 -52 -11		326	-3 -8 1 14	0 -8 1 13 -2	-8 1 2 4	4 -5 2 -15 -5	12 0 5 -32	12 -2 2 -44

*Speed is in knots; winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

	T N/S		0		7		2 1	0	-2-	-1-		2 -	0	7.	4 9	-3
	E/W P	200	-10	2 5	-19		8 8-	8-	. c.	ကက္		21.2	2-	9 1	19	-13
E)	N/S	m 03 -	7	4 %	-5	E)	2 -	0	20 20	0 1	6		~	0 -	4 9	-2
, 145	JULY E/W N/S	r 00 0	- 20	9-1-	-19	, 171°	-12	-13	e 2	4.6	152°E)	4 %	-11	6.	01-	8-
(14°N	l/s	-220	- 5	9 0	-1	o (7°N	0 -	-	m w	- e-	(7°N,	1-0	-1	m	10 er	-5.
#355 Guam (14°N, 145°E)	APR E/W N	-15	00	13	-2	#356 Majuro (7 ⁰ N, 171 ⁰ E)	-15	-2	52	16	#357 Truk (7°N,	-12	0	40	7-1-	-5
#355	JAN W N/S	200	· - ·	ဖ ဆ	60	#356	4.1	5.		23 10	#35	e -	-	t	- 4	3
	E/W	-11-	-13		-12		-16	-16	n er	-15		-16	-21	-14	-16	-25
	qm	850	300	200	100		850	200	300	150		850			150	100
	_		_								7		_	_	_	_
	CT N/S	0 1-	0	1 5	0			7	7 67	c 4-]	0 -	0	- 0	200	-2
(V)	OCT E/W N/S	-6 -4 -1					-13 1			-11 -5		-13 0 -7 1				
155°W)	S E/W		18	239	Ø)	67 ^o E)	-13	-10	n 10		170°W)		-4	15	250	4
(20°N, 155°W)	E/W	64.	4 18	5 25 25	4 9	⁹⁰ N, 167 ⁰ Е)	-13	0 -10	2. 4. 2. 4.	-11	17°N, 170°W)	-13	1 -4	3 15	250	2 4
yman (20°N, 155°W)	S E/W N/S E/W	94-	22 4 18	36 4 29 32 5 25	0 4 9	and (19°N, 167°E)	2 -13	-5 0 -10	2 - 4 - 4	-6 -4 -11		-1 -13 0 -7	0 1 -4	21 3 15	35 5 50	2 2 4
Sen. Lyman (20°N, 155°W)	B/W N/S E/W	2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 22 4 18	-2 36 4 29 -6 32 5 25	-2 0 4 9	ake Island (19 ⁰ N, 167 ⁰ E)	-1 -14 2 -13 -2 -11 1 -11	-5 -5 0 -10	-8 -3 -3	15 -6 1	Island (17 ⁰ N,	-18 -1 -13 -10 0 -7	-1 0 1 -4	-1 21 3 15	22 350 50 50	-5 2 2 4
o/Gen.	S E/W N/S E/W N/S E/W	22 -2 -1 -8 -1 -6	41 0 22 4 18	67 -2 36 4 29 62 -6 32 5 25	32 -2 0 4 9	-	-14 -1 -14 2 -13 -7 -2 -11 1 -11	3 -5 -5 0 -10	28 -8 6 -3 -3 44 -9 14 -4 5	-9 15 -6 1 -6 -9 -4 -11	Island (17 ⁰ N,	-1 -18 -1 -13 -1 -10 0 -7	9 -1 0 1 -4	27 -1 21 3 15	52 -2 35 5 50	28 -5 2 2 4
o/Gen.	E/W N/S E/W N/S E/W	22 -2 -1 -8 -1 -6	-3 41 0 22 4 18	-11 62 -6 32 5 25	-6 32 -2 0 4 9	#353 Wake Island (19 ⁰ N, 167 ⁰ E)	-2 -14 -1 -14 2 -13 -3 -7 -2 -11 1 -11	-5 3 -5 -5 0 -10	-8 44 -9 14 -4 5	42 -9 15 -6 1 17 -6 -9 -4 -11	354 Johnston Island (17 ⁰ N,	-11 -1 -18 -1 -13 -2 -1 -10 0 -7	-5 9 -1 0 1 -4	11 56 37 -1 21 3 15	-11 52 -2 35 5 25	-9 28 -5 2 2 4

 $\ensuremath{^\#} \xspace$ Speed is in knots; winds from the west and south are positive

Battle 2. Climatic Mean Monthly Observed Basi-Wasi and North-South Winds? (Conf.)

THE E/W W/	*****		000 000 000 000 000 000 000 000 000 00		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
(水)	******	8358	8080000	098#	8400000
A 100	5885885	FOREB	\$880===	A SEE	333770
10 mm	9400009	No (16°)	80×00×09	(80°N)	99-20-09
(A) (A)		(a, 844° to)	*\$\$****	(616 ⁽² E))	-77955
40 E.S.	0404888	(3)	*****		电平电影等
38/8	*****		4555445		*****
(AC) W (B)(S)	eeneg#g		(B) 10 10 10 10 10 10 10 10 10 10 10 10 10		二〇〇〇丁寶月
am	2233111		100000000000000000000000000000000000000		
0					
S/88 W/	**************	#678	900EEE	#889	
1	0.0000000000000000000000000000000000000	878 Ship Beravo (38°3%,	******	Ship Chartte (19 ⁶ %)	*22252
4,314 W 88/5	0000000	(3) OMB	600000000	artine (G	@ # B B B B B B
10 / (B)	**======		* 3 8 8 8 8 8		222222
8/8 W/S	ಪಡ್ ಕ್ಷಾ ಪಾ	Su(*)		SE W	######################################
E/W 8	~*25555				2855881
10 M	9700000		B 10 10 10 10 10 10 10 10 10 10 10 10 10		E-400000

 $^{\rm 8}{\rm speed}$ is in knots; winds from the west and south are positive

Fairle 2. Climatic Wean Wonthly Observed East-West and North-South Winds" (Cont.)

#376 Ship Delfa (44"%, 41"W)

#879 Ship Julian (52"N, 20"W)

N/8	00 Pr 60	60 es	6% me			69 0	88 an	e consi	ep 9	9 4			8	(516	i and	ani	0	68	88
E/W	32.2	# IS	88			10	98	40	80 S	38			46	-	69	4.5	2.0	23	3.6
8//8	777	79	60 mi		(1)	90	e) eş	•	69 6	9 99		1400W	897	8	(00)	89	6	12	98
E/W N	488	80 66	80 80 80 80		N. N.	188	(A)	18	(4) (5) (4) (5)	9.60		Mook,	97	900	69	報	23	61	(2)
8//8	ant ant @	79	99		Milke (665°N, 2°E)	67	P T	9:	6 G	0.00		200	66	9 9	9	000	300 B	(800)	0
E/38/ 3	8 @ g	200	(9) cm (cm cm)		M district	40.0	10 (S)	(2)	(800 (d) 100 (d)	B (8) 0 (9)		November	926 H	- 16	89	88	88	96	366
8//8	000	# @ G G	@ (to		#383	9	# 88	(33) (8)	90 B	7 19		S SHARP	9=	(6)	(8)	- Ni	σεί θ	90	29/20
W/3	228	88	88			00 (80 GE	88	sse (6 (6) (6)	9.69		#3863	88	38	89	28	33	98	88
		88	9.8			000	999	9000	0002	900	1		98	(8)84	996	(86)	000	989	(99)
9// S//	300			1					90	9 (9)]								
99	2 0 0 E			1			9 4		900	9 (6)	1		8					9)	
8/8 %/	m 6 6	on op	90			*	(a)	e casti							38	80	08	99	9
8/8		on op	90			*		e casti							38	80	08		9
8/8 8/3 8/8	m 6 6	46.00 60.00 60.00	86. 98. 98.		(A, A)	9 9	(a)	(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)		9 (8)		(M, K)	98 98		95	80	83	99	36
N/S E/W N/S	988	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 2% 62 0 2% 0		, N. 48 W)	9 9		10 SS 01	988	(E)(E)(E)(E)(E)(E)(E)(E)(E)(E)(E)(E)(E)(Pag. 89 WW	GE GE	- E	950	300	(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	80 68	(a) 9.9.9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0
N S B N S B N S S N S		- 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7	70		one (cc) 'No sel'W)	9 9 9		B	96 99	(E)		(38°N)	88 8	10 E E	98 00 36 0 36	(a) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	Sec. 48 Sec. 100	B 655 877	80 36 0
N & B W N & B W N &		00 00 00 00 00 00 00 00 00 00 00 00 00	8 22 - 38 - 38 - 38 - 38 - 38 - 38 - 38		hip Eche (33°N	# (B)		10 4 c6 28 c1		200 CO		Hip India (59 ⁶ %,	8 88 8	S	98 98 0 36 a	88 87 0E	- 1 Se ca Se se	(B) (B) (B) (B)	8 16 0 01 6°
S/8 W/3 S/8 W/3 S/8 W/3 S	15.5 E.2 E.3 E.5	20 50 50 50 50 50 50 50 50 50 50 50 50 50	8 98 00 00 00 00 00 00 00 00 00 00 00 00 00		HETTE CHEED BEFOR (COST No. 48" W.)			666 60 de cris 255 c.1	200 Sin 10 Sin 1	200 30 00 000		(38°N)	33 S) 33 S) 5	8	98 95 0 36 8 93	20 00 00 00 00 00 00 00 00 00 00 00 00 0	SS 05 05 100	8 68 E- 63 E-	84 c.9 gm m gg &c.
W W/S E/W W/S E/W W/S	100 000 000 000 000 000 000 000 000 000	100 640 110 204 60 10 10 10 10 10 10 10 10 10 10 10 10 10	8 20 38 -0 38 0 38 0 38 0 38 0 38 0 38 0 0 38 0 0 38 0 0 38 0 0 0 38 0 0 0 0		Ship Eche (33°N	# (B)		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	100 000 000 000 000 000 000 000 000 000	20		Ship fadha (39 ⁶ %,	3 63 6 6	S	58 00 88 00 15 15 15 15 15 15 15 15 15 15 15 15 15	20 00 00 00 00 00 00 00 00 00 00 00 00 0	10 St	88 68 82 63 82	8 16 (0) (0) (0) (0) (0) (4)

Speed to in knotes winds from the west and south are positive

Table 2. Climatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

à di	8/W W/3	90/3	E/W	S/8	E/S	8/8 N/8	5 × (a)	8/8	920	E/W	S/N N/S	E/W	N/S	E/W N	S/N	E/W N	N/S
2.3		20	- £4	400	4.25	69	62	89	8.56			40.0	0	-13	0	6-	0
100		89	60	800	230	gal)	91	(40)	700	0.13	88	80	0	200	mé	-10	0
400		96	90	9	0.16	@	80	and the	200			680	0	-12	-	E-a	0
83		(ED	01	GE B	600	orie H	900	S9 H	300	_		10	00	100	08	68	0
300		398	88	9	OĐ.	69	60	80	200	_		17.5	9		24	es	-
88		23	(80	69	49	99	90	89	150	_		69		9	0	9	*
68	1		300	69	-10	osti U	eg.	0	100			9	(E)	~	-	6.	7
		986#	Bogota	a (5°N,	(24°W)	(X)					#417 (Shiftmal	hua (29	Chibushus (29°N, 106°W)	(M ₉ 9		
		9	0	0			0	-	850		0	84	81	-2	8	25	-
99		88	(E) to	940	600	49	(E) (B)	(ball	700	Oct.	88	83	£=	8	2	145	d
8		0	90	gali	883.0	#	4	349	500	98	89	8	3	30	0	14	4
		4	89	*	-14	0	60.0	GEN H	300	49	0	80	576) (Fe)	90	0	30	9
20		89	ae (50	90	98) 98) 9	(8)	89 F	200	49.	grafi (66	123	9	29	36	60
50		8	100	99	200)	997	89	20	063	ege -	89	333	12	-10	99)	200	1~
26		(P)	HE H	20) U	E-99	gale .	89	0	100	89	44	69 65	0	-14	63	11	64
		#390	Deele	e (51°N,	N, 4°(11)	6					+4221	Cmpali	me (28	Umpalme (28°N, 111°W)	(Mo		
32	L	98	80	30	10	-	-	8	85.6	-	0	81	-	-2	-	-	0
50		0	03	89	89	000	Gazali Gazali	(00)	200	6	0	22	8 8FS	94	0	93	165
98		g) or	818	the sea	883	916	(6)	9	300	_	(800)	68	96	80	85	122	2
50		600	20	870	36	0	20	89	300	-	99	(F)	89	-10	80	673	160
99		803	83	000	69	0	50	P 1	200	-	49	99.5	91	7	89	422	80
98	a	32	866	200	92	0	68	97.0	13.00	-	(P)	622	3.6	- 34	en	60	r
265		(6)2	858	and a	80	91	29.00	9	1,00	-	91	96	10	-16	6	90	6

speed is in knets; winds from the west and south are positive

Table 2. Clinatic Mean Monthly Observed East-West and North-South Winds* (Cont.)

	100	62	23	9	0	0	90	2
	T N/S	7	•	9-	•	7	•	1
	E/W N	2	-	10	12	15	18	17
E)	S/N	4	7	62	7	0	*	7
N, 20°	JULY E/W N/	24	2	90	11	20	24	14
d (46°	R N/S	-	00	4	09	-	and	-
#446 Szeged (46°N, 20°E)	E/W N	2	80	12	61	22	22	18
+44	S/N	0	68	89	9-	6-	6-	6-
	JAN E/W N	63	9	77	11	21	24	10
	quu	850	200	200	300	200	150	100
	T/N/S	6		-	**	9=	-4-	*
	E/W N/S	10 3		500	244	91 (08)	204	16 -4
	//S E/W N/	-		2 19 -1			-	
x, 7°E)	/S E/W N/	69	g g g	89	69	art	-	
a (31°N, 7°E)	//s E/W N/S E/W N/	65	100	69	22 2	21 1	16 1	80
Essen (51°N	E/W N/S E/W N/	1 8 2	0 10 1	00	22 23	100	-4 16 1	88
+439 Essen (51°N, 7°E)	APR JULY OCT	1 8 2	0 10 1	69	20 -6 22 2	19 -3 21 1	15 -4 16 1	88 89
Essen (51°N	APR JULY OCT	1 8 2	0 10 1	2 C C C C C C C C C C C C C C C C C C C	-12 20 -6 22 2	-12 19 -5 21 1	-10 15 -4 16 1	13 -3 8 2

speed is in knots; winds from the west and south are positive